Computing overview- Year 5 Teach Computing

Unit title	Vocabulary	Device needed:
1: Systems and Searching	technology, system, web search, search engine, index, crawler, bot, criteria, rank, connection, digital, input, process, output	Chrome book- google slides

Lesson	Learning objectives	Tasks	Prior Knowledge
1 Systems	To identify systems • I can explain that systems are built using a number of parts • I can describe the input, process, and output of a digital system • I can explain that computer systems communicate with other devices	Task: Children to use Activity 2 sheet to design a digital talking teddy bear using input, process and output.	You will need to be familiar with the concept of a computerised locker. A computerised locker allows customers to collect parcels they have ordered online
2 Computer Systems and Us	To recognise the role of computer systems in our lives • I can identify tasks that are managed by computer systems • I can identify the human elements of a computer system • I can explain the benefits of a given computer system	Task: Activity 1: Worksheet- discuss and complete in groups whether the statement is a timed or sensor crossing. Task: Activity 2: Worksheet -Catalogue store. Work in groups to sort the statements into jobs for people and jobs for computers. *Extra activity - explore three other scenarios and the impact on human v computer.*	Digital systems are used in a wide range of public contexts, e.g. airport, rail, or bus station arrival and departure boards. You may wish to consider systems that might be familiar to learners in advance of the lesson.
3 Searching the web	To identify how to use a search engine • I can make use of a web search to find specific information • I can refine my web search • I can compare results from different search engines	Task: Activity 1 How do you search? Use the worksheet to work with a partner to write a full set of instructions for someone to conduct a search to answer the question, "In what year was Mahatma Gandhi born?" Swap instructions with another group and test the steps - give feedback. Task: Activity 2 Refining a search. Search Rugby, Sale and Boot. Discuss and share findings. Explain I wanted to go on family trips to these places. Share ideas of how to search more effectively. Task: Activity 3 Use the worksheet to record different search engines for an agreed specific criteria - facts about the pyramids. Identify results and advertisements.	You will need an awareness of internet searching and an understanding of the search engines introduced in the starter activity You will need an understanding of how to refine search terms to get more relevant results (Activity 2) You will need to be aware that there are two ways to conduct a web search: from within a search engine and using the address bar (omnibox)
4 Selecting search results	To describe how search engines select results • I can explain why we need tools to find things online • I can recognise the role of web crawlers in creating an index • I can relate a search term to the search engine's index	Activity 1: using an index. Pose an open question to discuss: "I would like to find out about rabbits. What could I do?" Model using class encyclopaedia. Ask a child to pick an animal and see if it is in the encyclopaedia. Task: Activity 2 How do search engines find things on the World Wide Web? In groups use the worksheet to create an index of items in the classroom and the list places they can be found. Task: Activity 3 Children to use the chrome books to make internet searches. Create basic search name and record search result, add one extra part and record again. Detailed search and record final result.	You will need to be aware of the key milestones in the development of the World Wide Web, displayed on slide 3. In this context, 'select' refers to how a search engine chooses the results to display. Search engines also 'rank' results that are selected – this is covered in Lesson 5. You will need to know how search

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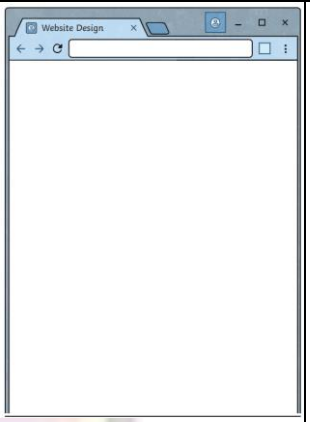
			engines use web crawlers to create an index of the World Wide Web. There is a useful guide here: https://www.bbc.co.uk/bitesize/topics/z7wtb9q/articles/ztbjq6f
5 How search results are ranked	To explain how search results are ranked • I can order a list by rank • I can explain that a search engine follows rules to rank results • I can give examples of criteria used by search engines to rank results	Task: Activity 1: Create a paper school webpage. Identify the information needed on webpage. Include a URL (for example www.allaboutourschool.com), a heading, subheadings, paragraphs of information, and a section at the bottom for links to be added. Activity 2: Create a link from their webpage to one of the other groups' webpages. Write the URL of the group's webpage that they wish to link to and why they selected this webpage. Activity 3: Ranking webpages. Write a keyword into the search bar (using a search engine), relating to the content of learners' webpages, e.g. "our school". Score webpages on a range of criteria. 	You will need to be aware that search engines use ranking to determine the order in which search results are displayed. You will also need to know that search engine optimisation (SEO) is applied to websites to help them rank as highly as possible.
6 How are searches influenced?	To recognise why the order of results is important, and to whom • I can describe some of the ways that search results can be influenced • I can recognise some of the limitations of search engines • I can explain how search engines make money	Activity 1: In groups explore perspectives of the searcher, the search engine company or the webpage creator. Children to share/ explain how results are influenced by each part of the search process. Activity 2: Explore some of the limitations of web searches through using phrases that are ambiguous or have more than one meaning. Worksheet - In groups look at one of the children's scenarios (Priya, Marcus or Sophie) and explain the findings from the first search and the second search. In groups feedback the findings to the class.	You will need an understanding of selection and page ranking from Lessons 4 and 5. For Activity 1, you will need to be aware of the impact that searchers, search engines, and webpage creators have on the effectiveness of a search. You will need to be familiar with the scenarios in Activity 2

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Unit title	Vocabulary	Device needed:
2. Video production (creating media)	video, audio, camera, talkinghead, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side,angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share.	Chrome book- Canva video editor canva.com/video-editor/ *Use Ipads or Movie making with Adobe Express for Education.*

Lesson	Learning objectives	Tasks	Prior Knowledge
1 What is video?	To explain what makes a video effective • I can explain that video is a visual media format • I can identify features of videos • I can compare features in different videos	Activity 1 / Task: Watch video from CBBC which shows YouTuber DanTDM playing a selection of vintage games. Think about the questions : Describe the video - what is happening? What can you see in the video? Describe it in as much detail as you can. If you were to make a similar video, what would you do differently? Record their reactions on the worksheet (A1 Worksheet - Reviewing a video) Activity 2: Analyse the video BBC link: https://www.bbc.co.uk/cbbc/watch/bp-dan-tdm-old-fashioned-games focussing on the these parts: Clip 1 (0:01-0:11) Clip 2 (0:14-0:20) Clip 3 (0:45-0:48) Activity 3: Comparing videos: Watch video on the PPT link. Class discussion on the following questions: Can you think of three different types of videos you've seen? What do they have in common? What was unique about them and why do you think they did that differently?	You will need to be able to explain that video is the recording, reproducing, or broadcasting of moving visual images. Also, to be aware of your school's online safety rules around what to do if learners see inappropriate content. You will need to be familiar with the following filming techniques that are discussed in activity 2: • Talking head • Panning • Close up
2 Filming techniques	To use a digital device to record video • I can identify and find features on a digital video recording device • I can experiment with different camera angles • I can make use of a microphone	Activity 1: Introduce a number of basic filming techniques that will be useful for their video project - Close up - filming one person, emphasising the expression on their face; Mid range - filming one person with some background detail; Long shot - filming one person, showing their whole body and where they are; Moving subject - a person moving from one place to another; Side by side - filming two people at the same time; High angle - makes a person look smaller than they are; Low angle - makes a person look bigger than they are; Normal angle - makes a person look their actual size. Use A1 worksheet to experiment and assess each technique.	You will need to be familiar with the basic functions of the devices your learners will be using for filming. You will need to be familiar with the filming techniques introduced in this lesson. The techniques are described below in 'Activity 1 - Filming techniques' in the lesson plan and in 'A2 Worksheet answers - Which

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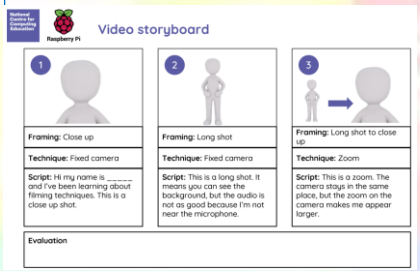
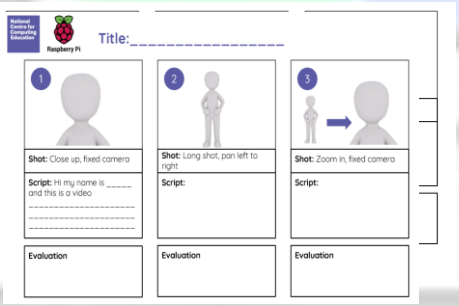
		Activity 2: In pairs with A2 Worksheet on IWB and match the technique with the description on whiteboards - class discussion. Activity 3: Show the video from the time points highlighted on the slide and identify which techniques they think are being used. Class discussion of techniques.	technique?'. You will need to understand how the proximity of the subject to the device and background noise impacts the effectiveness of the device your learners are using for filming.
3 Using a storyboard	To capture video using a range of techniques • I can suggest filming techniques for a given purpose • I can capture video using a range of filming techniques • I can review how effective my video is	Activity 1: Class discussion on the filming techniques used on PPT. Activity 2: Use the storyboard (handout on IWB) to create a video. Work in groups of 3 or 4 and use the storyboard to create a video with 3 framing scenes: static, zoom and pan/tilt.  Video storyboard 1 Framing: Close up Technique: Fixed camera Script: Hi my name is _____ and I've been learning about filming techniques. This is a close up shot. 2 Framing: Long shot Technique: Fixed camera Script: This is a long shot. It means you can see the background, but the audio is not as good because I'm not near the microphone. 3 Framing: Long shot to close up Technique: Zoom Script: This is a zoom. The camera stays in the same place, but the zoom on the camera makes me appear larger. Evaluation Activity 3: Class discussion to evaluate the filming techniques from PPT.	You will need to be familiar with the filming techniques introduced in this lesson (each technique is described in the lesson plan below): • Static camera • Zoom • Pan and tilt
4 Planning a video	To create a storyboard • I can outline the scenes of my video • I can decide which filming techniques I will use • I can create and save video content	Activity 1: Discuss some of the ideas for a video and ask learners if they have any other ideas. Explain they will produce the video in pairs or groups of three and that all members of the group should have the opportunity to film content and be filmed. Activity 2: Modify and create their own storyboard using A2 Handout - Storyboard and explain that for the first three scenes, parts of the storyboard have been completed and that they will plan the final three scenes themselves. Activity 3: Film the first scene of the storyboard, making sure it has been saved.  Title:_____ 1 Shot: Close up, fixed camera Script: Hi my name is _____ and this is a video 2 Shot: Long shot, pan left to right Script: 3 Shot: Zoom in, fixed camera Script: Evaluation Evaluation Evaluation Activity 4: Group discussion to review their content by completing the evaluation section under the first part of the storyboard. Ask learners to consider: • The quality of the video • The quality of the audio • Does the content match what is on	You will need to be familiar with the concept of a storyboard, in particular the format expected for this lesson, which is explained in the lesson plan below. You will also need to be familiar with the filming devices the learners will be using in this lesson

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		the storyboard?	
5 Importing and editing video	To identify that video can be improved through reshooting and editing • I can store, retrieve, and export my recording to a computer • I can explain how to improve a video by reshooting and editing • I can select the correct tools to make edits to my video	Activity 1 : Short class discussion to convince their peers and reach an agreement on the following statements: An effective video must always have audio. (Think about silent movies.) Colour is very important in video. (Think about noir/black-and-white movies.) An effective video must always be planned. It is important to watch your recording to ensure you are happy with it. Activity2 : Finishing the scenes from last week. Children need at least one recording of each scene. Import the videos onto computers. Encourage learners to store their files in a labelled folder so that they can find them again easily. A demonstration is provided for Windows 10 Video Editor. Task: Uploading videos to Video Editor: Locate and open Video Editor on the computer. Demonstrate how to upload videos and photos into Video Editor using the video on the slide or by demonstrating in the software itself. Click on Add videos and photos or click on the thumbnail window. The selected videos will appear on the screen in the Timeline; this will take a few moments while they are prepared by Video Editor for editing. Once prepared, view the videos in the preview window. Track the progression of each video on each thumbnail image. The preview window will allow watching the entire sequence of videos. Task: Reshoot or edit? Display A3 posters on opposite sides of the room. Discuss the given scenarios as they decide whether to reshoot the scene or edit it. Give reasons and explanations for their decisions before showing the recommendations.	It is important that you are familiar with the devices and apps or programs that you will use to import and edit video content. Video editing is also possible on Canva, which is web based and can be used on any device. However, Canva accounts should only be created in line with school policy and with parental permission. There is advice on setting up Canva for Education accounts as part of the unit guide for Year 3 Desktop publishing. Another option with limited function is to use the Microsoft Photos app. If iPads are available, iMovie is also a suitable alternative You need to know where to locate the video files and where to save them for easy retrieval. Once recording has been completed, you will need to be familiar with this process of importing videos, including where videos will be stored.
6 Video evaluation	To consider the impact of the choices made when making and sharing a video • I can make edits to my video and improve the final outcome • I can recognise that my choices when making a video will impact the quality of the final outcome • I can evaluate my video and share my opinions	Task: Class discussion on how they felt about the process of making a video. What did they find easy? What was more difficult? What was the most valuable lesson that they learnt? Activity: Demonstrate the technique in the video editing software you are using or by playing the videos on the slides (these are for Windows 10 Video Editor).	You will need to have a clear understanding of how to edit and complete the video creation process, deleting or reordering clips. Finally, you should be able to demonstrate how to export the video project into an *.mp4 format for viewing.

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Unit title	Vocabulary	Device needed:
3: Programming A – Selection in physical computing	microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlledloop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer	Crumbles or Micro:Bits

Lesson	Learning objectives	Tasks	Prior Knowledge
1 Connecting Crumbles (Micro:Bits)	To control a simple circuit connected to a computer • I can create a simple circuit and connect it to a microcontroller • I can program a microcontroller to make an LED switch on • I can explain what an infinite loop does	*Before the lesson, download 'Lesson Prep white flashing sparkle – Y5.crm' to each Crumble controller. This will make the Sparkle flash white when your students correctly connect all the components and switch the battery pack on.* Activity 1: Children to connect the Sparkle to the Crumble controller using a Sparkle, five crocodile leads, and a battery box.	You will need to know how to connect a Crumble controller to a battery box, a Sparkle, and a computer. In this lesson, you will need to write programs using the Crumble programming software, to turn LEDs,

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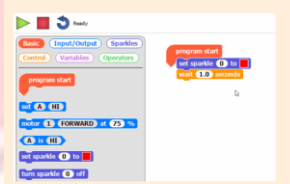
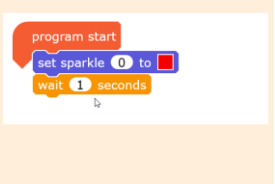
		Task: Program the Crumble to control the Sparkle. Discussion how to create a program and test that it works on a Crumble. Once working properly, modify and add to the program to produce different light patterns. Demonstrate that: Clicking on the red square on the set sparkle (0) to [red] block allows you to change the colour of the Sparkle. Clicking on the time value on a wait 0.5 seconds block allows you to change the duration of the wait command. Adding more blocks to the sequence will make the Crumble light the Sparkle more times. Using worksheet, complete a series of eight challenges. **Programming Crumbles** Program your Crumble to make the Sparkle flash in different ways **Programming Crumbles**  Setting a Sparkle's colour  Changing a wait command Activity 3: Explore using repetition in a program that instructs an LED to flash forever. Make suggestions to how they will know if the program has been constructed correctly (the Sparkle's LED will flash continuously when the program is downloaded and run on the Crumble controller).	known as 'Sparkles', on and off, and set them to different colours. You can find more information about using the Crumble software in the unit overview.
2 Combining output components	To write a program that includes count-controlled loops • I can connect more than one output component to a microcontroller • I can use a count-controlled loop to control outputs • I can design sequences that use count-controlled loops	Activity 1: Use modelled explanation on how to connect a geared motor and a Sparkle to their Crumble. Highlight the three motor commands shown and explain the Crumble can be programmed to make a motor spin forwards and backwards at different speeds. Activity 2: Work in pairs to create two programs using the two algorithms to guide them. Discuss the algorithms with learners and check that the instructions are understood. Activity 3 / Task: Create an algorithm to make the dancer move and the light flash. Choose how to present the algorithm and it should be clear enough for another group to understand. The algorithm should indicate changes, timings, and where a sequence of actions is repeated (loops). Modify if needed. Activity 4: Program and testing. Implement the algorithms as code. Use the algorithm to guide the creation of the program. When the program is complete, run it to check that it produces the expected outcome. If their program doesn't perform as expected, check their code and fix any problems found.	You will need to know how to connect a Sparkle and a motor to the Crumble controller. You will need to know how to write programs to control the output components, including how to change the values within specific command blocks. You will need to know how to use count-controlled loops in programs and be able to change the number of times that the commands are repeated. You can find more information on count-controlled loops in the unit overview.
3 Controlling with conditions	To explain that a loop can stop when a condition is met • I can explain that a condition is either true or false • I can design a conditional loop • I can program a	Activity 1: Modelled and class discussion to create conditions using given statements on worksheet 1 that answer true or false. Talking partners to explore the question: "Are there any similarities between the commands that you were given and the count-controlled loop command block?" (The answer is that for both, there is an action or set of actions that will be carried out until the number specified has been reached.)	You will need to know how to connect a push switch. You will need to know the difference between how switches are used in simple circuits (the ones that learners will have experienced through the science curriculum) and circuits

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	microcontroller to respond to an input	Activity 2: Complete worksheet 'Do until loops' activity sheet in pairs. Task: Write a program that uses the switch as a condition to stop a light sequence. Scaffold with A3 Code: Support file conditions	connected to a microcontroller. In circuits connected to a Crumble, pressing the push switch will complete the circuit and change an input. In the Crumble software, the command HI is used to indicate that the circuit has been completed. You will need to have an understanding of conditions in programs, as highlighted in the outline plan below. You can find more information on conditions in the unit overview.
4 Starting with selection	To explain that a loop can be used to repeatedly check whether a condition has been met • I can explain that a condition being met can start an action • I can identify a condition and an action in my project • I can use selection (an 'if...then...' statement) to direct the flow of a program	Activity 1: Class discussion as to why the person in the image has their umbrella up (it is raining). Identify that this could be represented by selection – if and then. Demonstrate how to write a statement on the interactive display, concluding that: If it is raining, then put up your umbrella. In pairs, create and if and then statement for drinking water. Activity 2: Paired work to discuss their initial ideas for creating a statement to control a light pattern for the Crumble and to share some suggestions. Use the 'if and then' model. Write an algorithm to plan your program's flow: If the button is pressed Then make the Sparkle light red and wait for 1 second Activity 3 – Task: Use the Crumble programming software to implement the earlier design (algorithm) as a program. Highlight the need to add 'Do the following continuously:' to the start of their algorithms. Implement the algorithms as programs, then to download and run them.	You will need to have an understanding of selection in programs. You can find more information on selection in the unit overview.
5 Drawing designs	To design a physical project that includes selection • I can identify a real-world example of a condition starting an action • I can describe what my project will do • I can create a detailed drawing of my project	Activity 1: Class discussion looking at a house of the future and the different tasks are controlled by devices that have been programmed to carry out actions when a condition has been met (selection). Work with a partner to write an algorithm to exemplify how selection might be used in an automated home on their whiteboards. When checking work, ensure that they have used an 'if...then...' structure; used repetition so that the condition is repeatedly checked and used indentation. Activity 2: Share the premade demonstration model and discuss initial ideas on how the parts of the model relate to the parts of the image. Discuss ideas such as, "How might the input, outputs, and selection be used?" Working with partners, use 'Designing a model' activity sheet and explain that they will need to identify what they are making; identify the materials and equipment that they will need; draw a labelled diagram to show what their model will look like; identify the input and output components that they will use; complete a labelled wiring diagram to show how the Crumble controller and its components will be connected and consider how selection will be used in their model. TASK: Design and build a model of a fairground ride and control it using a Crumble. Model design: Chairoplane Draw a labelled diagram of your project. Draw a wiring diagram to show how your Crumble will be connected to its components. Activity 3: Preparing the model. Working in partners to create the basic structure of the	You will need to know how a Crumble controller is connected to its components, including input and output components. Prerequisites: Before the lesson, you should build an example of the basic structure of a carousel similar to the one shown in the photographs on the slides.

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		model; connecting the Crumble to its components; position the circuit within the model. Once made, pair up with another group, and share the designs with each other and explain how the model will work.	
6 Writing and testing algorithms	To create a program that controls a physical computing project • I can write an algorithm that describes what my model will do • I can use selection to produce an intended outcome • I can test and debug my project	Activity 1: Writing algorithms. In pairs, develop an algorithm to show how they will meet the requirements of the task. Identify that the task requires the output devices to be controlled by selection. Remind learners to use selection; ensure conditions are repeatedly checked to see if the condition has been met; include waits; turn all their outputs off. Class discussion to share ideas and algorithms. Activity 2: Write own programs to control the model. Keep referring to the algorithms as they create the code. Advise that it's good practice to test the program as they go along. When they add a few lines to their program, they should run it on the Crumble and check that the code does what they intended. If it doesn't, they should fix any errors. Point out that doing this makes the task of debugging their program easier. Activity 3: Testing and debugging of the programs. Fix errors and complete an evaluation of their product.	You will need to have an understanding of selection in programs. Prerequisites: Learners will need the design plans, the models, and the electric circuits that they created in Lesson 5 of this unit.

Unit title 4: Data and information – Flat-file databases	Vocabulary database, data, information,record, field, sort, order, group, search, value, criteria,graph, chart, axis, compare, filter,	Device needed: J2data database j2e.com/j2data

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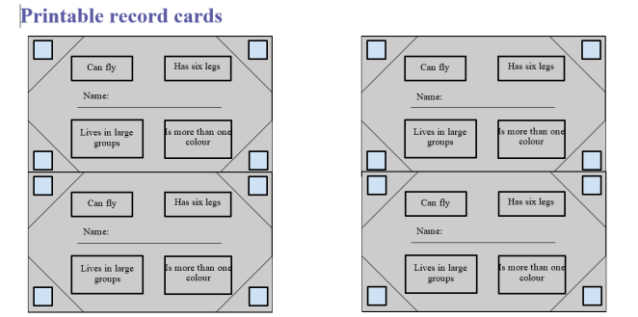
		presentation.	http://www.j2e.com/help/videos/datags4

Lesson	Learning objectives	Tasks...	Prior Knowledge
1. Creating a paper-based database	To use a form to record information • I can create a database using cards • I can explain how information can be recorded • I can order, sort, and group my data cards	Activity 1: Briefly discuss the word 'database'. Ask learners where they have heard it before. (They may recall work on branching databases in Year 3, or work on data in maths.) It might be helpful for learners to split the word and consider the definition of 'data' on its own. Working individually, they need to choose eight to ten animals and create a record for each using the printed record cards.  Explain that the ticks indicate that the animal has that feature. Activity 2: Pose a challenge to the learners: how quickly will you be able to sort your records? Organise learners into pairs. Timed activity to sort cards alphabetically by animal name, mix them up, and then sort them again in reverse alphabetical order. Discuss the questions on the PPT. Activity 3: Pose a question about the data, for example, ask which animals can fly. Children to use their record cards to answer the question. Use the slides to ask different questions. Discuss the strategies used, and whether the process was effective. Organise learners into pairs and ask them to combine their database cards, removing any duplications. Take it in turns to pose a question about the database to their partner, who then search the records to answer the question. Learners can complete the question recording sheet to record questions and answers.	Learners will create a paper-based database. This is highlighted throughout the plan below. More information about databases, records, and fields is included in the unit overview. Learners will also use the term 'attribute'. More information about attributes is included in the unit overview.
2. Computer databases	To compare paper and computer-based databases • I can explain what a field and a record is in	Activity 1: Demonstrate how to use the J2E Mini Beasts database or use the slides to introduce the steps needed for the activity. https://www.j2e.com/data/examples/minibeasts. When you use a computer database, you can view the data in different ways. (Animated image switches between records in form/card view and table view.) One click will sort the data in that field from A to Z or high to low and a second click on the heading will sort the data Z to A or low to	Learners will be introduced to flat-file databases. This is highlighted throughout the lesson plan. More information

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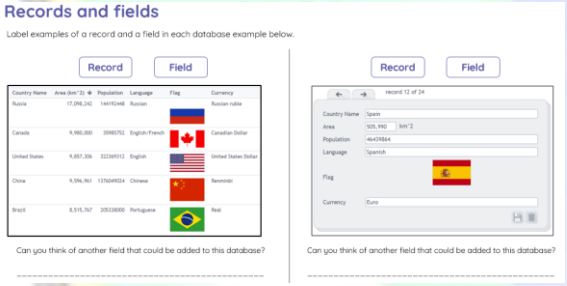
	a database • I can navigate a flat-file database to compare different views of information • I can choose which field to sort data by to answer a given question	high. Children to use this method of sorting to find the answers to the questions on the PPT. Discuss the strategy today and from last week and make comparisons of effectiveness and speed. Activity 2: Give out worksheet A2 'Different views for sorting'. Divide the class into pairs and choose a different view to work in (form or table). Give time to answer the three questions on their sheets, and ask each learner to feed back to their partner on the advantages and disadvantages of sorting data in the view they are using. Learners then swap and try sorting in the other view to see which they prefer. Complete the activity sheet and to feed back to the class on the field they used, why they chose that field, and the advantages and disadvantages of different views. Activity 3: Recap what they have learned about records and fields using the 'Mini Beasts' database. Use the 'Records and fields' worksheet to label the records and fields on the other examples. Shared discussion to consider other fields that they could add to each database, and add them to the sheet.  Different views for sorting • Write three questions below that you would like to find answers to from the 'Countries' database • Decide whether you are using form or table view • Sort the database to find the answers • Write down which fields you used and why Question 1 Answer 1 Which fields did you use to answer the question and why? Question 2 Answer 2 Which fields did you use to answer the question and why? Question 3 Answer 3 Which fields did you use to answer the question and why? Which database view do you prefer for sorting (form or table)? Why?  Records and fields Label examples of a record and a field in each database example below. Record Field Can you think of another field that could be added to this database? Record Field Can you think of another field that could be added to this database?	about flat-file databases is included in the unit overview. Learners will also need to explain the terms 'record' and 'field', in relation to a database. More information on records and fields is included in the unit overview. Teachers will need to be familiar with using j2data sample databases. Support with navigating the databases can be found at http://www.j2e.com/help/videos/datags4
3. Using a database	To outline how you can answer questions by grouping and then sorting data • I can explain that data can be grouped using chosen values • I can group information using a database	Activity 1: Demonstrate how the corners of the cards without a tick can be cut off to help sort the database. When the cards are mixed up, holding onto the 'lives in large groups' corner and shaking the cards will leave you holding only the cards which meet that criteria, therefore creating a group of all animals which live in large groups. Children to use their own card sets to cut the corners off and use them to answer the questions on the PPT to sort. Discuss questions on the PPT on accuracy and effectiveness. Activity 2: Using a countries database in J2E, (countries (j2e.com)) model how to find out which countries in the database are German-speaking. Children to use the search function to answer the questions on the PPT on a whiteboard.	Teachers will need to be familiar with using J2Data sample databases. Support with navigating the databases can be found at http://www.j2e.com/help/videos/datags4.

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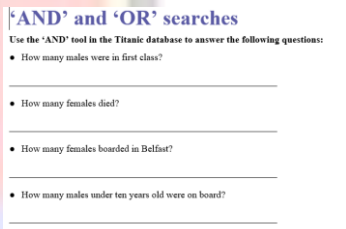
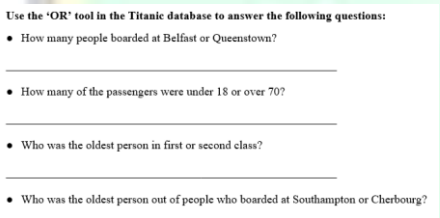
	• I can combine grouping and sorting to answer specific questions	Activity 3: Model that once a database search has been carried out, the search results can be worked with separately. Use the video, or live demonstration to repeat the search from the computer-based 'Grouping records' activity in table view. Children to use 'search', then 'sort by', to find answers to these questions and complete their responses on the 'Using the database' recording sheet. Encourage discussions over accuracy of data retrieved and not accepting everything presented.	
4. Using search tools	To explain that tools can be used to select specific data • I can choose which field and value are required to answer a given question • I can outline how 'AND' and 'OR' can be used to refine data selection • I can choose multiple criteria to answer a given question	Activity 1: Use statements from the PPT, and talking partners to explain they will need to react appropriately, depending on whether they meet the criteria given. Use a database that contains records for passengers of the Titanic. (https://www.j2e.com/data/examples/Titanic+Passenger+List) Open the Titanic database and give a brief overview of the fields, and a recap on the Titanic disaster if needed. As a class, search the records to answer this question: How many 16-year-olds were on board the Titanic? Independently search for the answers to other questions on the PPT. Activity 2: Working independently, use the 'AND' tool to answer the questions on PPT, and complete the 'AND and OR searches' worksheet. Activity 3: Repeat the activity at the start of the lesson, this time using 'or' statements, as per the PPT. Discuss how the search results change. Compare results with the simple searches from the 'Meeting given criteria' activity, and explain that result numbers may increase if searches are looking for more than one attribute.  'AND' and 'OR' searches Use the 'AND' tool in the Titanic database to answer the following questions: • How many males were in first class? • How many females died? • How many females boarded in Belfast? • How many males under ten years old were on board?  Use the 'OR' tool in the Titanic database to answer the following questions: • How many people boarded at Belfast or Queenstown? • How many of the passengers were under 18 or over 70? • Who was the oldest person in first or second class? • Who was the oldest person out of people who boarded at Southampton or Cherbourg? Model how this search looks using the question, 'How many people were in first or second class?' Use video if needed on PPT to explain. Working in pairs to explore the search questions on PPT and add their answers onto the 2nd part of the worksheet.	Teachers will need to be familiar with using J2Data sample databases. Support with navigating the databases can be found at http://www.j2e.com/help/videos/datags4
5. Comparing data visually	To explain that computer programs can be used to compare data visually • I can select an appropriate chart to visually compare data • I can refine a chart by selecting a particular filter • I can explain the benefits of using a computer to create charts	Activity 1: Think, write, pair, and share where they have used or seen a chart before. Use PPT to discuss (or recap) how to read a chart, and what information they can find out from the chart. Show two different charts, both created from the same database and class discussion on what information can be gathered. Vote for the chart that gives the most information for the questions being posed. Decide on what question might be being asked for the other chart. Task: Activity 2: Model finding the chart tab, and use it to create a chart using filters to define the x and y axes. Carry out a search (e.g. 'class = first') to produce a bar chart. Change the x axis, e.g. choose 'gender'. Discuss what effect this is having on the chart produced. Working in partners, use the 'Titanic' database https://www.j2e.com/data/examples/Titanic+Passenger+List to create charts using the 'Creating charts to answer questions' on the worksheet, thinking carefully about which chart type is the best for illustrating the answers to the questions.  Creating charts to answer questions Use the chart tool in the 'Titanic' database to create charts to answer the following questions and complete the information below: 1. Were there more males or females on board the Titanic? Answer Chart type used x axes Search (if needed) 2. Who was the oldest passenger on board the Titanic? Answer Chart type used x axes Search (if needed) 3. How many males were in first class? Answer Chart type used x axes Search (if needed) 4. How many people boarded at Belfast or Queenstown? Answer Chart type used x axes Search (if needed)	Teachers will need to be familiar with creating charts within the J2Data sample databases. Support with navigating the databases can be found at www.j2e.com/help/videos/datags4.

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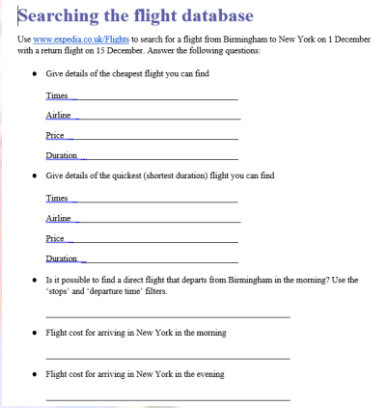
6. Databases in real life	To use a real-world database to answer questions • I can ask questions that will need more than one field to answer • I can refine a search in a real-world context • I can present my findings to a group	Activity 1: Use the video on PPT, or demonstrate live how to search for a flight on Expedia, which must meet certain conditions. It needs to fly from Manchester to Paris on 12 October, and return on 19 October. Demonstrate how to access the database and complete the 'flying from', 'destination' and 'date' fields. Show learners how to sort their results by 'price' and 'location', and apply filters by ticking 'stops' and 'departure times'. Task: Learners need to find a flight from Birmingham to New York on 1 December, with a return on 15 December. Ask them to record their findings by answering these questions on the 'Searching the flight database' worksheet: Discuss the answers as a whole class and consider which flights might be the most appealing and the reasons. Activity 2: Use the same search criteria from the previous activity to find flights to fit three scenarios: a direct flight; a flight with two stops; the flight that arrives earliest in the morning. Make notes on these three scenarios on whiteboards. Activity 3: Working in partners put details of the three flight suggestions in a presentation. Demonstrate how to access and complete the slide template with details of the three flights. If needed, demonstrate how to screenshot flight details from their browser into the slides. In the final slide, add details of a recommendation based on their searches. This may involve weighing up prices with flight duration and times, and making a decision based on their own preferences. Class presentation on how they used the database to arrive at this option, for example using filters or sorting options to narrow down the search. Allow time to create presentations, and present them to groups of peers or to the whole class, depending on the time available. Task: Give feedback to each other's presentations.	Knowledge of how to carry out a flight search using www.expedia.co.uk/flights, and the ability to screenshot flight details from a web browser, would also be beneficial.



Searching the flight database

Use www.expedia.co.uk/Flights to search for a flight from Birmingham to New York on 1 December with a return flight on 15 December. Answer the following questions:

- Give details of the cheapest flight you can find
  - Times ...
  - Airline ...
  - Price ...
  - Duration ...
- Give details of the quickest (shortest duration) flight you can find
  - Times ...
  - Airline ...
  - Price ...
  - Duration ...
- Is it possible to find a direct flight that departs from Birmingham in the morning? Use the 'stops' and 'departure time' filters.
- Flight cost for arriving in New York in the morning
- Flight cost for arriving in New York in the evening

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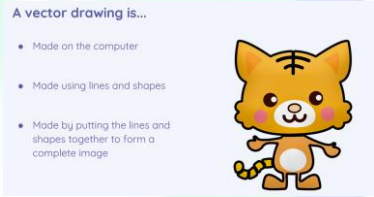
Unit title 5: Vector drawing (creating media)	Vocabulary vector, drawing tools, object,toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection	Device needed: Chrome books Google Drawings and Google Workspace for Education

Lesson	Learning objectives	Tasks	Prior Knowledge
1 The drawing tools	To identify that drawing tools can be used to produce different outcomes • I can recognise that vector drawings are made using shapes • I can experiment with the shape and line tools • I can discuss how vector drawings are different from paper-based drawings	Task: Explain and model what vector drawings are.  Activity 1: Make a picture using only the shapes given. Use the activity sheet and cut out the shapes to make a picture. Tell the learners that they can't add anything else to their picture – they can only use the shapes provided. Glue these onto an A4 sheet. Share finished examples with the class. Activity 2: Teacher modelling activity using Google Drawings. Tell them that the chequered part of the page is the drawing canvas. Explain that this isn't like a chequer-coloured piece of paper. The squares are used to demonstrate a transparent area. Children to explore the four tools for themselves, creating and saving a picture of a building for future use.	Teachers will need an understanding of the tools available in the chosen software. For support using Google Drawings, see the L1 Handout - Overview of the drawing tools.

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		Overview of the drawing tools This teacher handout gives you a quick overview of the toolbar and drawing tools you may need to know in this lesson. **General**  Undo, Redo, Print, Paint format, Zoom, Select, Line tools, Shapes, Textbox, Image, Comment Activity 3: Class discussion to respond to and review the questions on the PPT slides.	
2 Creating images	To create a vector drawing by combining shapes • I can identify the shapes used to make a vector drawing • I can explain that each element added to a vector drawing is an object • I can move, resize, and rotate objects I have duplicated	Before the lesson: Print and cut out the teacher handout for this activity. This is best printed on A3 paper to make sure learners are able to clearly see the shapes. Activity 1: Discuss the question, "How can you make more circles or rectangles without using the Shape button?" Take feedback. Show the short animation. Model how to copy and paste. Task: Children to create a quick, simple vector drawing using just the circle and rectangle shape tools. Click to animate the examples and ask the learners to open Google Drawings and begin to create a vector drawing. Activity 2: Share short animation. Explain they can rotate shapes by clicking on them to select them and then using the circular handle at the top to click and rotate the shape. Model how to undo or redo moves. Take feedback on the changes made in the PPT. Activity 3: Individually create one of the drawings displayed using Google Drawings. Use the skills they have learned in both the lessons of the unit to choose the correct colours and rotate the shapes. Use their knowledge of copy and paste to duplicate shapes to support them. Save work for future lesson. Activity 4: Review short cut keys - alt C, alt V and alt z.	Teachers need to know that vector drawings are created using shapes and that each shape used is called an object. It would be useful to know how to move, resize, rotate, duplicate, and change the colour of objects within Google Drawings (or your chosen alternative), however this is also supported in the slides.
3 Making effective drawings	To use tools to achieve a desired effect • I can use the zoom tool to help me add detail to my drawings • I can explain how alignment grids and resize handles can be used to improve consistency • I can modify objects to create a new image	Task: Explain it is important to notice similarities and differences in vector drawings. Ask, "Which two penguins are the same?" Allow them time to discuss this with a partner and take feedback. Activity 1: Explore the use of the 'zoom' and 'fit' tool. Open ncce.io/penguin. Working in pairs to build the penguin's head. They can do this by using the Zoom button. Explain that the head is in the correct place, so they only have to move the eye parts and the beak. Activity 2: Discuss the red alignment lines and explain what they are used for in Google drawing. Create the rest of the penguin so it is identical to the penguin on the page. They need to use their resizing skills for	Teachers would benefit from an understanding of the tools within Google Drawings. However, this is supported in the slides.

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		some of the objects and the alignment guides to support them. Activity 3: Work through PPT slides modelling and demonstrating different features for border tools and effects changing the penguin to a parrot. Working in pairs to turn their penguin into a parrot. They need to use the tools on the slide to support them with this. Remind to save work.	
4 Layers and objects	To recognise that vector drawings consist of layers • I can identify that each added object creates a new layer in the drawing • I can change the order of layers in a vector drawing • I can use layering to create an image	Activity 1: Layering. Model the process of layering through the PPT. Objects can be moved backwards and forwards using the Arrange menu option. They can be moved forwards and backwards by one object at a time, or they can be moved to the back or front in one go. Explain that layering can be used to create images. Activity 2: Think, pair, share: "What is wrong with the emoji on the left?" Allow time to share their ideas with the class. On Chromebooks, children open ncce.io/emojis to explore using their ordering skills to reveal each emoji face on the canvas and begin to layer. Use slide 13 to reveal answers. Activity 3: Talking partners as to how they would create the images shown on PPT using vector drawings. Listen to some of their responses. Work through PPT to model different ideas and strategies. Working in partners and use a blank Google Drawings file to create their own nature vector drawing in 20 minutes. They should use layering to support them, as well as utilising the other skills they have learnt in this unit so far. These include resizing, alignment, copy and paste, zoom, and fill. Task: Think, pair, share: From PPT ask, "How would you fix this drawing?". Allow time for responses from the learners.	Teachers would benefit from an understanding of the tools within Google Drawings. However, this is supported in the slides.
5 Manipulating objects	To group objects to make them easier to work with • I can copy part of a drawing by duplicating several objects • I can recognise when I need to group and ungroup objects • I can reuse a group of objects to further develop my vector drawing	Activity 1: Children to open the link on their computer (ncce.io/flower). Group the objects on the drawing and copy them to create a bouquet of flowers. This is only a short task, but it gives the chance to see what can and can't be changed while objects are grouped. Activity 2: Ask and share ideas on the question, "If you had three animals, or plants, what would you expect to be different about them?" Share ideas, such as changes in colour or size. Task: Open the link, ncce.io/grouping. Working in pairs to make changes to the images as directed on the PPT. Activity 3: Copy one of the images from the previous activity and add it to a background. Choose the background they wish to use and use the link provided on the slide. Once they have copied their chosen vector drawing across, they can make copies. Encourage to be creative with making changes to their copies. Remind the learners that they need to ungroup and regroup the objects as they do this.	It is important to recognise that although grouped objects act as a single object, they are still a collection of individual objects that can be manipulated. When working with a group of objects, the easiest way to manipulate them individually is by ungrouping them. However, if you click an object within a group that is selected, changes can be made without ungrouping the objects.
6 Create a vector drawing	To apply what I have learned about vector drawings	Task: Think, pair, share: "What vector drawing skills have you learned so far?" Give time to think and share their ideas.	Teachers would benefit from an understanding of how digital

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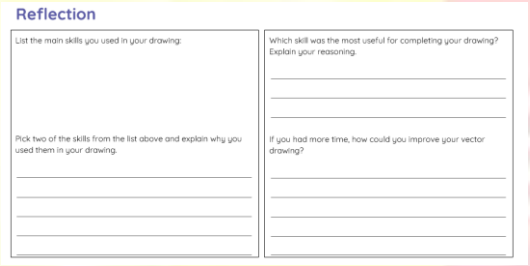
	• I can create a vector drawing for a specific purpose • I can reflect on the skills I have used and why I have used them • I can compare vector drawings to freehand paint drawings	Activity 1: Ask "Where can you find vector drawings?" Take suggestions and click to animate the slide. Task: Using google drawing, create a vector drawing image for one of their classroom's labels. They could create: Scissors, Pencils, Calculators. Activity 2: Using the vector drawing they have just completed, class discussion about the skills they have utilised. Share the activity sheet with the learners and give them time to complete the sections.  Reflection List the main skills you used in your drawing: Pick two of the skills from the list above and explain why you used them in your drawing. Which skill was the most useful for completing your drawing? Explain your reasoning. If you had more time, how could you improve your vector drawing? Activity 3: Vector versus paint. Work through PPT questions comparing and contrasting vector drawing and a paint program. Discuss the pros and cons of each one.	images can be made, either using shapes or pixels. It would be an advantage for teachers to have an understanding of the drawing tools available in Google Drawings. Both of these requirements are supported in the slides.

Unit title	Vocabulary	Device needed:
6: Programming B – Selection in quizzzes	Selection, condition, true, false, count-controlled loop,outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operation	Chrome Book or I-Pad Scratch scratch.mit.edu

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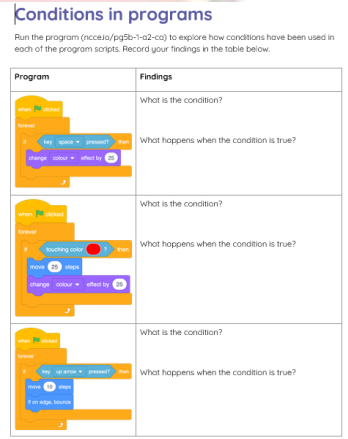
Lesson	Learning objectives	Tasks	Prior Knowledge
1 Exploring conditions	To explain how selection is used in computer programs • I can recall how conditions are used in selection • I can identify conditions in a program • I can modify a condition in a program	Task: Explore 'true or false' statements on PPT and children to show responses on whiteboards. Read slide 5 and children respond with their answer depending on whether they were correct with the statements. Activity 1: Share the Scratch project 'Using selection'. Explain that they will have the opportunity to explore how 'conditions' and 'selection' are being used in the program. Identify how many conditions there are, and what selection there is. Give time to use the program, look at the code, and decide what conditions and what selection is used. Discuss responses as a class. Activity 2: Work through PPT to demonstrate the steps needed for the activity. Working in partners to run and use the program to find out how a condition is used in each code snippet. https://scratch.mit.edu/projects/1027339509/ Explain that for each of the code snippets on their activity sheets, they need to note the condition that is used, and what happens when the condition is true. (To run this activity as a scaffolded task, provide learners with the Scratch project 'Annotated Conditions in programs', which contains the same code snippets, but also includes annotations to guide their exploration. (https://scratch.mit.edu/projects/1027339759/) Activity 3: Open the Scratch project 'Modifying selection' https://scratch.mit.edu/projects/1027339984/ and change the condition that is used in each code snippet. Return to the Scratch programming environment and model to learners how to change a condition in the code snippet. Change the conditions for each program. After each condition has been modified, run the code to check that the action is carried out when the new condition is met. 	You need to know that 'conditions' are statements that need to be met for a set of actions to be carried out. This is highlighted in the plan below. More information on conditions has been included in the 'Unit overview'. You will need to understand that 'selection' is a programming construct that makes use of conditions to decide which set of actions to follow (only one set of actions is used in this lesson). This is highlighted in the plan below. More information on selection has been included in the 'Unit overview'. You will need to know the blocks available in Scratch to allow conditions to be used in programs, including those that use selection. You should be able to identify the conditions that are used in a program and the effect that meeting these conditions will have. You will need to modify the conditions in a program and identify when a program is using selection.
2 Selecting outcomes	To relate that a conditional statement connects a condition to an outcome • I can use selection in an infinite loop to check a condition • I can identify the condition and outcomes in an	Task: Using PPT, display the two dance sequence algorithms and invite opinions on the statement 'dance 1 has fewer instructions so it will finish before dance 2'. Ensure children notice it uses 'forever' as a form of repetition. Discuss what impact this has on the algorithms. Activity 1: Using PPT to demonstrate using Scratch 'Using repeats'. Discuss what happens when they run the program (by pressing the green flag) and then pressing the 'A' key. Ask how a forever loop may help. Give the learners an opportunity to add the forever loop to their code. Demonstrate the correct placement of the forever loop. Ask how using a forever loop changes the way the program runs. Explain that repetition in the form of an infinite loop is used with selection to instruct the computer to repeatedly check whether the condition has been met, so that the action is carried out every time the condition is either true or false. Without the use of an infinite loop, the condition will only be checked once.	You will need to know that repetition needs to be used in selection where the condition needs to be repeatedly checked, and that without this, the actions will not be carried out when the condition is true. You will also need to know that selection can be

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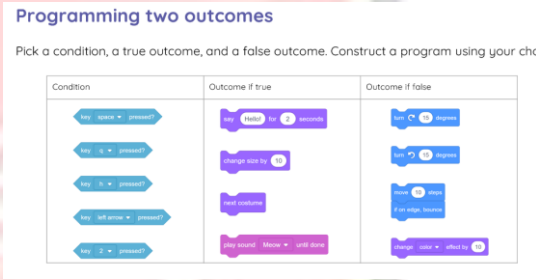
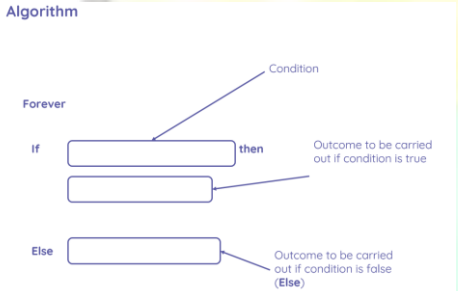
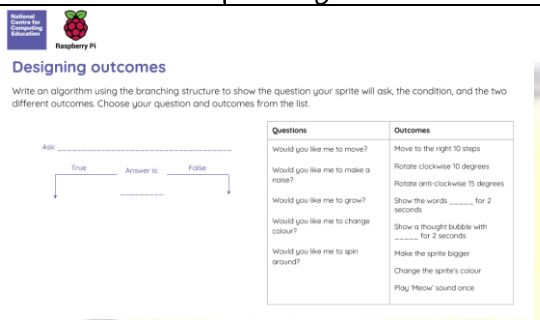
	'if... then... else...' statement • I can create a program that uses selection to produce different outcomes	Activity 2: Create a program for the dog sprite, which represents the algorithm displayed on the slide. When completed their code, check that they have remembered to include a forever loop, so that the condition is continually checked. Show slide 9. Show the learners the complete code for the algorithm. Emphasise that to write programs that use selection with two outcomes, they need to use a different orange control block to reflect the if... then... else... structure. Click on the slide to show the condition and the two actions in the code snippet. Activity 3: Construct a conditional statement using the if... then... else... structure. Use A3 Activity sheet, and explain that they are going to select a condition, an outcome if true, and an outcome if false from the options on the sheet. They will construct the algorithm, and then the program, using the if... then... else... structure. Highlight that they will need a condition, outcome that will be selected when the condition is true, and outcome that will be carried out when the condition is false.   Task: Explain an outcome on the PPT. Class discussion.	represented by the structure 'if... then... else...'. This allows for a set of actions to be carried out when the condition is false, as well as when the condition is true. You will need to be able represent this form of selection in algorithms, and identify which outcome will be selected and why. Finally, you will need to know how to construct a program using Scratch that contains selection in the 'if... then... else...' structure, and explain how the outcome relates to the condition.
3 Asking questions	To explain how selection directs the flow of a program • I can explain that program flow can branch according to a condition • I can design the flow of a program that contains 'if... then... else...' • I can show that a condition can direct program flow in one of two ways	Task: Invite two learners to act out the displayed algorithm: one as the person asking the question, the other as the person responding to the question. Ask them to act out the algorithm so that the question is responded to with a correct, and an incorrect, answer. When the response is given, pause the acting and invite suggestions as to what should be said and why. Model tracing the lines in the algorithm to identify which outcome should be selected. Discuss branching structures. Activity 1: Work through PPT exploring branching structures with children responding via whiteboards and class discussions. At slide 10, children to use Scratch to test their answers. Activity 2: Use an algorithm with a branching structure to design a program that uses selection in the if... then... else... structure to direct the flow when a question is answered. Use A2 Activity sheet. Identify which questions can be asked, and how to select command blocks that are appropriate to the questions.	You will need to know that selection in the structure 'if... then... else...' can be used to control the flow of actions in programs, and to identify which outcome will be selected by identifying whether the condition has or has not been met. You will need to understand that an algorithm with a branching structure can be used to represent selection using the 'if... then... else...' structure. You will need to use branching algorithms to represent and design



Designing outcomes

Write an algorithm using the branching structure to show the question your sprite will ask, the condition, and the two different outcomes. Choose your question and outcomes from the list.

Ask: _____

True | Answer is: _____ | False

Questions	Outcomes
Would you like me to move?	Move to the right 10 steps
Would you like me to make a noise?	Rotate clockwise 10 degrees
Would you like me to grow?	Rotate anti-clockwise 15 degrees
Would you like me to change colour?	Show the words _____ for 2 seconds
Would you like me to spin around?	Show a thought bubble with _____ for 2 seconds
	Make the sprite bigger
	Change the sprite's colour
	Play 'Meow' sound once

In pairs, create an algorithm using a branching structure to design a program.

Activity 3: Use Scratch to implement the algorithms as programs. Test the programs to ensure that both outcomes are achieved, and debug if necessary. Check that they have spelt the answer in the condition correctly. To run this activity as a scaffolded task, the learners could use the Scratch project 'Programming different outcomes (Y5b - L3 - A3 - Programming different outcomes (support) on Scratch (mit.edu))', which provides them with the structure needed to use selection with a question. They will need to add their true and false actions.

Task: Class discussion to explain what outcome will be selected, and why, when the user gives the responses on the PPT.

programs.

With regards to programming using Scratch, you need to know that when using the ask () and wait command block, an infinite loop is not required. This is because the command block instructs the program to wait until the question has been answered (the user has typed in an answer) before checking the answer against the condition. You will need to know how to construct a condition by adding the answer block to the () = (50) block. It is also important to understand that the computer will compare the answer against the text provided in the condition. For the condition to be true, the spelling has to be the same. Any answer provided that does not exactly match the condition will result in the condition being false. Note: Scratch accepts upper case and lower case as the same, but most programming languages don't.

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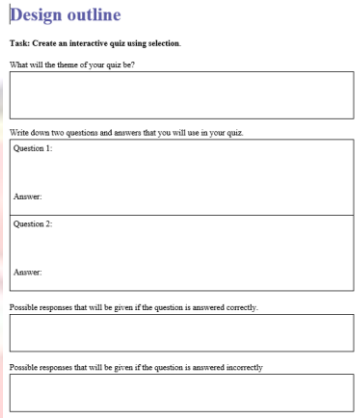
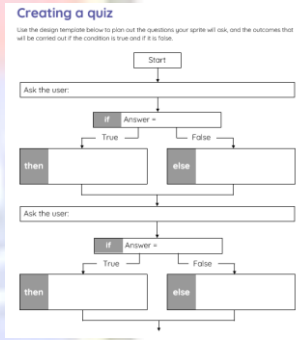
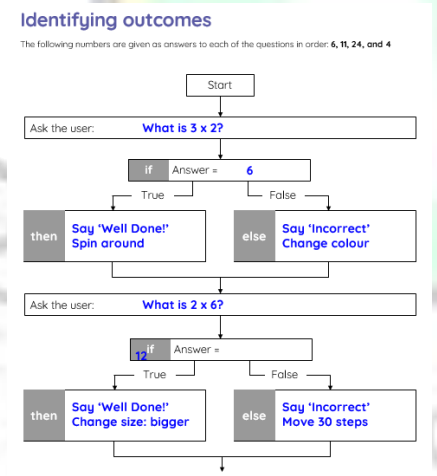
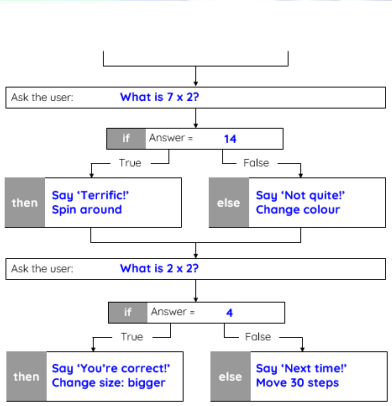
4 Designing a quiz	To design a program that uses selection ● I can outline a given task ● I can use a design format to outline my project ● I can identify the outcome of user input in an algorithm	Activity 1: Discuss the initial ideas with a partner or a small group about creating an interactive quiz using selection. Think about how to address this task by considering the questions on the slide. Class discussion of the responses thought of referencing the criteria from the slides. Individually complete A1: design outline. Activity 2: Use A2 worksheet created to meet the requirements of the task. Individually, complete the design template. Use some of their ideas from the previous activity. Decide on the outcomes of the selection statements. These outcomes are shown as 'actions' on the sheet. For each question, they need to provide an action if the correct answer is given (if the condition is true), and an action for an incorrect answer (if the condition is false). For each outcome, choose what the sprite will say. They may also choose to make the sprite move or change in some way, e.g. change colour. Choose actions in Scratch with which they are familiar. Give the learners time to complete at least two questions on the design template, with associated answers (conditions) and actions (outcomes). Activity 3: Use A3 worksheet – a quiz design template. At the top of the sheet, the answers for all four questions are shown in the order in which they will be given: 6, 11, 24, and 4. Follow the design template through, and identify the outcome for each question. When identified what they think the outcome will be, circle or highlight that outcome on their activity sheets. When completed, they should have selected one outcome for each of the four questions. Task: Share the designs from the A2 activity with a partner. The learners should follow the conditions through, and identify which answers would trigger which actions. Keep all sheets from this lesson.     	You will need to be aware of the 'levels of abstraction' that can be used to support learners in understanding how to create programs. You will need to understand that the 'task' stage states what is needed, and outlines how these requirements may be met. You also need to know that the 'design' stage can be used to identify what the program should do. In this lesson, an algorithm with a branching structure will be used to outline how the task will be met, then a template will be used to create a design. You will need to understand that when a user provides an input, in the form of an answer, it will be compared against the condition to identify which outcome to choose. If the answer does not match that given in the condition exactly, then the condition will be false.
5 Testing a quiz	To create a program that uses selection ● I can implement my	Task: Show a series of statements that relate to the programs on the slide. Talking partners to identify whether the statements refer to both of the programs, one of the programs, or none of the programs and explain their thinking.	You will need to understand how to construct a program, using the Scratch

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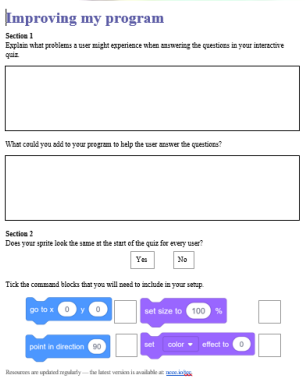
	algorithm to create the first section of my program • I can test my program • I can share my program with others	Activity 1: **Use activity sheets from previous lesson.** Implement their designs to create the first part of their programs in Scratch. This will include: asking the first question; checking the answer; programming the actions for the outcomes for the first question. Remind to stop and test the programs to see whether they have used selection correctly and edit if needed. Use https://scratch.mit.edu/projects/1027342510/ if needed for support. Activity 2: Use Slide 12 and talking partners to respond to questions on the design template. Ask how you could test to see whether this part of the algorithm has been implemented. Establish that you need to run the program and test it. On Chromebooks, run the program once and enter the correct answer. Once they have submitted the correct answer, they should check the output matches their design. They should then re-run their program and enter an incorrect answer. Learners should check that their program's output matches their design. Debug where needed using the slide prompts on the PPT. Activity 3: Share the programs with others, so they can use them and provide feedback. Provide each learner with some sticky notes so they can leave feedback after using another learner's quiz.	programming environment, that asks a question and uses selection to control the outcomes. You will need to know how to test whether selection has been used properly, by identifying the outcomes that should be carried out for correct and incorrect answers. You will need to run the program to identify whether these outcomes are carried out. You will also need to know some of the likely errors that learners might make when constructing their programs (entering the condition incorrectly, placing the actions in the wrong part of the condition statement, not using the 'if... then... else...' structure for selection), and how to rectify these errors.
6 Evaluating a quiz	To evaluate my program • I can identify ways the program could be improved • I can identify the setup code I need in my program • I can extend my program further	Task: Think, pair, share the question, "Are the selection and conditions used in the programs the same?" Use PPT to support and answers.  Improving my program Section 1 Explain what problems a user might experience when answering the questions in your interactive quiz. What could you add to your program to help the user answer the questions? Section 2 Does your sprite look the same at the start of the quiz for every user? Yes No Tick the command blocks that you will need to include in your setup. go to x: 0 y: 0 set size to 100 % point in direction 90 set color effect to 0 Resources are updated regularly — the latest version is available at: ncce.io/ipa Activity 1: Working in pairs to discuss the scenario displayed. Three users tried your quiz, and despite all knowing the correct answers, only one got them all correct. Highlight the users' answers and invite suggestions as to why this might be. Use A1 sheet to support the testing process. Individually respond to section 1. Activity 2: Refer to section 2 of A1 sheet. Children to open the Scratch project 'Class example' in full-screen mode. Invite some learners to use the quiz, answering the questions both correctly and incorrectly. Return to slide 8 and invite suggestions as to whether the quiz was the same for everyone. Working on their quiz, add command blocks that are carried out before the user starts the quiz. This is called the setup. Model Slide 10, before children use section 2 to tick the boxes to indicate which command blocks they will need to use in the setup for their quizzes. Activity 3: Return to the programs and improve them in line with the ideas they recorded on their worksheets. Reminder that they need to test their programs as they work, and debug when necessary.	You will need to know that when conditions are used to check the responses to questions, the answer must match exactly. An answer that has a similar meaning to the identified answer will be classed as incorrect. You will need to be able demonstrate how to add commands to setup to programs so they start the same way every time. This will be an important facet of this lesson, as learners will need to understand this to ensure their quiz has

			usability for subsequent users. Teachers will need to know that user input in Scratch is not case-sensitive. This means that if a condition requires 'answer = yes', a user inputting the word 'Yes', 'YES', or 'YeS' would be shown the outcome for the condition being 'true', even though the words are not the same case. In other programming languages, this may not be the case and so it is best to discourage learners from using answers that are not in the same case. When learners are reviewing their projects, they may wish to improve the user experience by explaining to people using their quiz that all answers should be written in lower case.