

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
<p>To use the keyboard to type letters.</p> <p>To press the space bar once to create a space between words.</p>	<p><u>Main input:</u> Using a giant model of a keyboard, discuss the features of the keyboard and all the keys. Make a teaching point that the letter keys are capital letters but will produce a lower case letter. Discuss the space bar and tell the children that on a computer the space between a word does not need to be as big as a 'finger space' so we just press it once.</p> <p><u>Activity:</u> Children complete a labelling activity, adding captions to pictures (using teacher-made document or activity on programme such as Purple Mash).</p> <p><u>Plenary:</u> Read your writing back - <i>does it say what you want it to say? Can you check the spaces between your words to check that you only pressed the space bar once?</i></p>	Children type simple words and phrases as labels.	Link task to science or history e.g. labelling materials, parts of the body, parts of a castle etc.
<p>To use the return key to move down a line.</p> <p>To know how to use the 'shift' key to capitalise letters and produce punctuation.</p>	<p><u>Main input:</u> Review features of a keyboard. Tell the chn that we can make a capital letter by holding down the shift key and model doing this. Chn have a go at their computer. Model using the return key to go down a line.</p> <p><u>Activity:</u> Children write a list (e.g. shopping/packing for a holiday). LA children could copy a list so emphasis remains on typing, not spelling.</p> <p><u>Plenary:</u> Model how to use the 'shift' key to create some punctuation and explain that if it is at the top of the key, we need to use the shift key to create it. <i>How would we create the question mark? How would we make sure that 'Mum' has a capital</i></p>	Children write a list using the return key and can capitalise their own name.	Links to English – punctuation and capital letters in a sentence. Context of activity could link to any subject area, e.g. English (ingredients for a set of instructions) or Geography (going on holiday to a certain place).

	<p><i>letter? Model how to capitalise a letter. Ask children to add a sentence at the start, e.g. Mum, can you please get these things at the shop for me? Discuss punctuation and capital letters needed before chn write.</i></p>		
<p>To use 'backspace' to delete unwanted letters.</p> <p>To use the cursor to select where I want to type/edit.</p>	<p><u>Main input:</u> Review learning from last week. Explain to the chn that sometimes we type something wrong and we need to change it. Using large keyboard, point out the backspace key and model what it does on a pre-written sentence. Explain that if the error is in the middle of a piece of typing that we do not need to delete it all to edit it - model using the cursor key to choose somewhere else in the sentence to edit. Show another sentence that is incorrect in some way – <i>what needs to be changed? How could we change it?</i> Ask chn to explain how to change it, emphasising that we use the cursor to select.</p> <p><u>Activity:</u> Children edit an error-ridden piece of text. Make errors obvious, e.g. too many spaces, no capital letter at the start of a sentence etc to ensure all chn can access task (or differentiate appropriately).</p> <p><u>Plenary:</u> Children to type their own sentence and then check it for errors – <i>how can you edit it?</i> For HA, ask chn to improve the sentence by adding in an adjective.</p>	Children can edit and improve a piece of typed writing.	Writing could be linked to learning in any other curriculum subject.
To begin to use two hands to type on the keyboard.	<p><u>Main input:</u> Explain to children that we can type much faster if we get to know the keyboard and where all the keys are. There is also a certain place that we should keep our hands and we should use two keys. Use 2type on Purple Mash (Teaching Keys activity) and set options to CVC words. Model keeping your hands on the 'home keys' (the middle row of letters) and your thumbs on the space bar. Add giant hands to the giant keyboard to make this clear to the children. Follow Teaching Keys game, looking at which finger should be used to press the button.</p>	Children begin to type with two hands and show some awareness of location of keys.	

	<p><u>Activity:</u> Chn play Teaching Keys on Purple Mash 2type software.</p> <p><u>Plenary:</u> Ask chn a series of question – <i>which finger do you think I should use to press the 'a' key?</i> Chn sit at keyboards to answer.</p>		
To type using two hands on the keyboard.	<p><u>Main input:</u> Review learning from last week – <i>where do we rest our hands? What do we use to press the space bar? Which finger do you think we use to press the letter 'b'?</i> etc Tell the children we will be getting further practice today. Follow tutorial on BBC Dance Mat Typing game: http://www.bbc.co.uk/schools/typing/ to model using the game.</p> <p><u>Activity:</u> Children to follow level 1 on BBC Dance Mat Typing http://www.bbc.co.uk/schools/typing/</p> <p><u>Plenary:</u> Children have to explain to a puppet/alien how to use a keyboard.</p> <p>*Chn could be set extra practice as a homework using this website.</p>	Children can use two hands to type on the keyboard.	

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
<p>To open and save documents in/from the correct folder – (This objective will continue across all lessons!)</p> <p>To change, explore and evaluate different fonts.</p>	<p><u>Main input</u></p> <p>Model opening a document from Finder. Tell the children that computers let us change how the writing looks on the page. When the document is open, model selecting a word using the mouse and model how to change the 'font', explaining that this is like the computer's handwriting. Explain that there are lots of fonts that change the way letters look, and that they are all useful for different things. For each font, discuss whether it is a good font or not – <i>why do you think this? What does this writing remind you of? What might this writing be good for?</i></p> <p><u>Activities</u></p> <p>Children open a document from finder and change the font, analysing each one.</p> <p><i>Chn have a sheet to complete – chn write the name of the font they tried and assess it (good or not, what could it be used for etc).</i></p> <p><u>Plenary</u></p> <p>Model how to save a document in the correct place – teachers to create a specific folder for the lesson.</p>	<p>Children can open and save a file. Chn can change the font of writing by selecting it with the mouse.</p>	n/a
<p>To change size, colour and justification of my writing.</p>	<p><u>Main input</u></p> <p>Show chn a simple invite that they have to try and copy today. Tell the children that they need to make it look exactly the same. Model copying the title from the poster and review how to change the font (aim to find a similar font to the one used on the original). Next, model how to change the size and justification. Model how to change the colour of the writing by selecting it with the mouse. Model typing the next bit, but explain that you can set the settings you want before you</p>	<p>Children can change the font, size, colour and justification of a typed piece of writing to produce an invite to a party.</p>	n/a

	<p>write and model choosing the justification, font, colour and size before typing.</p> <p><u>Activities</u> Children copy an invite and aim to make it look exactly the same.</p> <p><u>Plenary</u> Model saving the document and chn save. Children then self-assess by ticking off the bits on the original that they have copied.</p>		
To drag and drop images into a Pages document. To change the size and wrap of an image to suit the purpose.	<p><u>Main input</u> Model opening a document with a series of images on. Model dragging and dropping into a Pages document (pre-typed information page with no pictures) and model changing the size of the image to fit the box. Ask the chn – <i>what has happened to the writing?</i> Tell the chn that the computer tries to fit the writing around the picture but we can change the way that it does this. Model changing the wrap of the picture.</p> <p><u>Activities</u> Chn drag and drop the images into a pre-typed information page with no pictures and change the size and wrap to fit them.</p> <p>Extension – can you put a big picture of a pirate in the background behind the writing?</p> <p><u>Plenary</u> Model saving the document into the correct folder.</p>	Children can drag and drop images, changing the size and warp to fit the purpose.	Chn to look at images for art/CC topic.
To copy and paste images into a Word document. To change the size and wrap of	<p><u>Main input</u> Review dragging and dropping from last week. Tell the chn that not all programmes let you do this, so sometimes we have to copy and paste from one document/page</p>	Children can copy and paste using the 'right click' function on their keyboard.	Chn could storyboard a story from RE/English/History

an image to suit the purpose.

to another. Model opening a file with pre-saved pictures and model copying and pasting using the right click button on the mouse.

Activities

Children copy and paste images into a blank storyboard. Extend HA children during the activity to using keyboard shortcuts cmd +c and cmd +v.

Plenary

Chn to save their storyboards into the correct folder.

Discuss – *Who is the audience? What is this about? Can you find a font for the captions to better suit the purpose/audience?*

Subject: Computing

Year Group: 1

Unit: Control (CS1a)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To understand and use directional language.	<p><u>Main input</u> Review directional language by asking children to move an object in different directions – forwards, backwards, left, right, turn, quarter turn. Review how we can tell left and right using our hands and that the left and right belongs to the object, not the room (a common misconception), therefore as the object moves, the direction that 'left' means moves with that object.</p> <p>Using a speaking frame, model how to give a blindfolded child one-step instructions to navigate from one part of the classroom to another.</p> <p><u>Activity 1</u> Children spend time, using speaking frame, giving one-step instructions to their partner.</p> <p><u>Mini-plenary</u> Tell the children that using multi-step instructions makes it quicker because there is less waiting time between instructions, but that you have to be able to think further ahead. Model visualising giving two/three steps at once and then model using a second speaking frame to give a two/three step problem.</p> <p><u>Activity 2</u> Children use speaking frame (differentiated for number of steps) and practice guiding each other, blindfolded around the classroom.</p> <p><u>Plenary</u> Children look at a maze and practice, using the multi-step instruction speaking frame, providing a solution to get through the maze with just one instruction. Chn</p>	Children can use directional language and begin to visualise a path to use multi-step instructions.	Maths cross-curricular links – directions and directional language.

	work this out in pairs then feedback to the class and other chn visualise this to check before 'running' the commands.		
To know how to move a BeeBot forwards and to know that you have to clear the memory before each new instruction.	<p>Resources needed: BeeBots</p> <p><u>Main input</u> Show the children the BeeBot and discuss how to handle them safely and sensibly. Ask the children if they have used one before – <i>what is it? What does it do? How does it move?</i> Tell the children that it has its own brain/memory and we have to tell it what to do. Model how to make the BeeBot move 5 times, remembering to clear the memory first. Next, tell the children that you want it to move 2 more times. Without clearing the memory, programme it to move 2 more spaces forward and count the movements with the children – I only asked it to move forward 2 times but it moved 7 times! This is because it remembered my instructions from before and so I need to tell it to forget the last instruction before I give it some new ones. Model how to clear the memory and then programme it to move twice.</p> <p>Ask the children – <i>how many times do you think we need to move the BeeBot forwards to get the BeeBot from one end of the room to another?</i> Take different answers and then model finding out, e.g. start with 10, it's not quite half way across so we need another 10, how many more do we need now etc. When the answer is found, tell the children that the room is X BeeBots long.</p> <p><u>Activities</u> Children go around the school and find out which room is the longest by using the BeeBot as a non-standard unit of measure. Children record in pairs on a data table.</p> <p><u>Plenary</u> Can the chn teach a puppet how to use a BeeBot to move forwards and clear the memory?</p>	Children learn to move the BeeBot forwards.	Maths cross-curricular links – directions and directional language.

<p>To know how to make a BeeBot turn left or right and to know that it moves in the direction that it faces.</p>	<p>Resources needed: BeeBots, treasure maps and iPads</p> <p><u>Main input</u> Sit the children in a circle and put a BeeBot in the middle. Ask the children to <i>explain how to make it move forwards</i> to review prior learning. Tell the children that it also has two buttons that will make it turn around, and it will do a quarter turn. Show the children the buttons and point out the arrows on each button that show the direction it will turn. Model making it turn around, emphasising the need to reset the memory before each movement. Now tell the children to point in the direction the BeeBot is looking, and tell the children that when we press the 'forward' button, that is the direction it will now move in.</p> <p><u>Activities</u> Two activities run at the same time, children swapping around half way through the lesson. 1) Children have a treasure map. Working in pairs, children follow pathways on the map. 2) Chn complete early levels of BeeBot game on iPads.</p> <p><u>Plenary</u> Using the BeeBot app on the IWB, model turning one-quarter turn in the wrong direction. <i>What should I do now?</i> Discuss the two options.</p>	<p>Children learn how to turn the BeeBot and that the arrow button moves it forward in the direction it is facing after the turn.</p>	<p>Maths cross-curricular links – directions and directional language.</p>
<p>To begin to use multi-step instructions.</p>	<p>Resources needed: iPads</p> <p><u>Main input</u> Reflect the BeeBot app onto the IWB. Show level 1 and ask the children what my first instruction into the BeeBot will be. Write it down on the board and move the BeeBot accordingly. Repeat for the rest of the steps, writing down each step. Once finished, reset the level and tell the children that, because of the memory in the BeeBot, we can give it all of the instructions in one go. Model inputting all of the instructions that we wrote down and pressing 'go'. Next, ask children to write down (by drawing symbols) the instructions to complete the next level. Children then complete this level on their iPads.</p>	<p>Children can follow a route by programming the BeeBot to use multiple steps. Children begin to debug their instructions.</p> <p>Use shorter routes, e.g. 4 step maximum</p>	<p>Maths cross-curricular links – directions and directional language.</p>

	<p><u>Activities</u> Children complete levels on the BeeBot app, writing down the instructions first.</p> <p><u>Mini-plenary</u> When a child tries a route that does not work, stop the class and discuss how we should 'de-bug' the instructions – if the BeeBot isn't doing what you want it to do, then your instructions aren't quite right as computers only do exactly what they are told. Reflect the problem onto the IWB and help child to debug, modelling pressing clear and starting again.</p> <p><u>Plenary</u> Show a blank treasure map – Tell the children that I want to get from the pirate ship to the treasure that is marked with a red X. <i>What will make a successful route?</i> Establish success criteria for a good route.</p>		
To use multi-step instructions.	<p>Resources needed: BeeBots and treasure maps.</p> <p><u>Main input</u> Review learning from last week using BeeBot app and working out multi-step instructions by writing them down. Refer to steps to success drawn out by children in previous lesson to help. Next, model how to visualise the route to navigate a treasure map and enter each instruction straight into the BeeBot, rather than writing it down first. Next, model a second example but programme and instruction incorrectly. Watch the BeeBot run the instructions and note where it went wrong. Tell the children it was correct to a certain point but then I need to debug my instruction. Model re-entering correct instructions and then re-thinking the correct command at the point it went wrong.</p> <p><u>Activities</u> Children navigate different treasure map courses using multi-step instructions programmed straight into the BeeBot. Support LA children by asking them to continue to write down their instructions.</p>	<p>Children can visualise and programme multi-step instructions into a BeeBot.</p> <p>Use shorter routes, e.g. 4/5 step maximum.</p>	<p>Maths cross-curricular links – directions and directional language.</p>

	<p><u>Plenary</u> Teacher to note any problems children had during the lesson and bring children together to de-bug these problems. (This can be done as a mini-plenary through the lesson as well.)</p>		
<p>To use effective multi-step instructions</p>	<p>Resources needed: BeeBots and treasure maps.</p> <p><u>Main input</u> Remind the children of their learning from last week by using the BeeBot app reflected onto the IWB to input all of the steps for a route in one go. Next, show the children their treasure map – tell the children that they have to travel from the Pirate ship to the treasure, putting all of the instructions into the BeeBot memory in one go. Model planning the route by visualising the route, thinking aloud about making sure that it is the quickest, most effective route, and then programming each stage into the BeeBot. Tell the chn that after they have planned the route, they should try it and see if it works. Review debugging – what do I do if it does not do what I want it to do?</p> <p><u>Activities</u> Children plan a route on their treasure map and then programme the BeeBot. Differentiate as appropriate (differentiate by expectation: number of steps)</p> <p><u>Mini-Plenary</u> Ask the chn to count how many times they press a button on the BeeBots – <i>is there a different route you can use which means you press the buttons less?</i> This means there will be fewer steps and so the route will be easier. <i>Can you find the easiest route with the fewest steps?</i></p> <p><u>Plenary</u> Ask the children to check their route against the Success Criteria – <u>did you do the whole route in one go? Was it the quickest way? Did you find a quicker way?</u></p>	<p>Chn plan a route and assess its effectiveness against SC. They begin to understand the need to make a route as simple as possible using multi-step instructions.</p>	<p>Maths cross-curricular links – directions and directional language.</p>

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To program one-step instructions	<p><u>Main input</u></p> <p>Introduce and model opening Daisy the Dinosaur app on the iPads. Tell the children that the dinosaur will only do what we tell it to do, like a BeeBot. Model reading all of the commands and dragging them onto the screen individually to see what they do. For the 'move' command, model how to change the direction that he moves using the dropdown menu. Model how to 'throw away' the command when it is finished.</p> <p><u>Activities</u></p> <p>Chn explore the different ways that Daisy can move and practice throwing the command away when it is finished.</p> <p><u>Plenary</u></p> <p>Model how to take a screenshot, open it in camera roll and print as evidence of learning.</p>	Children can use one-step instructions to make Daisy move.	Maths – Simple directional language forwards/backwards
To program multiple step instructions	<p><u>Main input</u></p> <p>Review learning from last week by asking the chn to explain how to make Daisy move. Tell the children that we can add in more than one instruction at once and Daisy will do all of them without stopping until the end. Explain how this is like a computer – a computer will only do what we tell it to do and then it will stop. Read the different types of movement that Daisy can do together. Model how to drag and drop a series of different commands, thinking aloud about what I want to happen before choosing the commands, and then pressing play to start the sequence. Point to how the program is working through each one in turn and then model how to change the order, 'throw away' commands and change them.</p>	Children can program multi-step instructions and begin to consider ensuring that their commands fulfil simple criteria.	n/a

	<p><u>Activity</u> Allow children time to explore the different movements by creating a multi-step sequence.</p> <p><u>Mini-plenary</u> Model, a sequence that is too long and tries to send Daisy off the screen – <i>what has happened?</i> Set children their new challenge</p> <p><u>Activity</u> Children have to move Daisy from one side of the screen to the other, all in one go, in any way that they want.</p> <p><u>Plenary</u> Teacher to show Daisy doing an action on the board but hide the command – <i>can you copy my Daisy with your Daisy?</i> Take screenshots as evidence of learning.</p>		
To use the 'repeat' command in instructions to make my instructions more efficient.	<p><u>Main input</u> Choose two children to come to the front of the class. Ask one to take a step forward. Repeat this 5 times. Next, tell the second child to take 5 steps forward. Ask the children which instruction was better and why. Tell the children that the second instruction was more 'efficient' because it only involved me saying one thing rather than lots of things – computers work a lot like this too, meaning we can achieve something much faster and with less code than before. Model opening Daisy and using the 'repeat' command to make Daisy move 5 times. Explain how there can be more than one instruction that is repeated, and model adding a repeated jump so that Daisy moves and then jumps. Next, ask the children to explain how I could make Daisy take 5 steps forward and turn around 5 times using the 'repeat' command. Take suggestions to build the code together.</p> <p><u>Activities</u> Children complete a series of tasks, e.g. <i>Can you make Daisy jump 5 times? Can you</i></p>	Children can use and understand the benefits of a 'repeat' command.	n/a

	<p><i>make Daisy walk 5 steps and then jump 5 times? Can you make Daisy jump and twist at the same time 5 times?</i></p> <p><u>Plenary</u> Ask the children to explain why a 'repeat' command is useful. Take screenshots as evidence of learning.</p>		
To use the 'when' command.	<p><u>Main input</u> Review learning from previous weeks. Next, ask the children – the computer only does something when I tell it to. When does it run the commands that I have given to Daisy? Explain that we can change 'when' Daisy does the commands that we have given her using the 'when' command. Model how to use this and read all of the options together as a class. Model constructing a simple piece of code, thinking aloud about the effect you want, e.g. I want Daisy to jump when I shake the iPad, and pressing 'play' so that the computer knows you are finished making code and want it to start using it. Next, tell the children what you want Daisy to do and ask them to tell you what code they would need. Chn then do this using Daisy and see if they had the desired effect.</p> <p><u>Activities</u> Provide differentiated challenges for children to complete, e.g. Can you make Daisy grow when I shake the iPad? (LA) Can you make Daisy move in the same direction as I tilt the iPad, such as left when I tilt it left? (HA)</p> <p><u>Plenary</u> Provide the children with a challenge that uses the 'repeat' and 'when' command. Allow them time to construct the code, using mini-plenaries to support if necessary.</p>	Children can use the 'when' command to change when an action happens.	n/a
To program efficient multi-step instructions	<p><u>Main input</u> Tell the children that efficient code means that it is as short as possible but still achieving the same effect. Review the learning from the last two lessons, reminding the chn how the 'when' command works and how the 'repeat' command makes</p>	Children understand the purpose of efficient code and	n/a

	<p>code more efficient. Construct some inefficient code and ask the children if they think it is good code or not. <i>Why not? How could I have written my code more effectively?</i> As a class, work to recreate the code and check that it does the same thing.</p> <p><u>Activities</u></p> <p>Give children screenprints of some inefficient code (with lots of repeating of the same commands). Can you make them better?</p> <p><u>Plenary</u></p> <p>Children have a desired effect that they have to code in the most efficient way, e.g. Daisy needs to move to the other side of the screen and jump up and down with excitement when she gets there, Daisy needs to grow as big as she can and then shrink as small as she can.</p>	can write code in an efficient way.	
To devise multiple commands to produce a desired effect.	<p><u>Main input</u></p> <p>Very briefly review learning from the term so far. Explain to the children that today, they will be using Daisy to tell a story! Look at all of the commands that are available and model telling a story, e.g. <i>One day, Daisy was walking through the park when suddenly, she got caught in a tornado! She was thrown backwards and the force was so powerful that she fell on the floor and rolled. She jumped up again etc.</i> Tell the chn that they need to come up with their own story using the actions that Daisy can do. Allow chn time to think of their story with their talk partners before sharing some good examples.</p> <p><u>Activities</u></p> <p>Children code their stories and orally rehearse telling their story as Daisy moves.</p> <p>Use mini-plenaries to reinforce using efficient code as necessary.</p>	Children can create their own code to tell a story.	English – orally telling a story/oral performance.

	<u>Plenary</u> Children share their stories with Nursery children, both telling the story and showing Daisy acting it out.		
--	---	--	--

Subject: Computing

Year Group: 1

Unit: Internet (DL1a)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To know the benefits and risks of using the Internet.	<u>Main input</u> Explain to the children that we are going to be using the internet to find information, as you can use it to find out about pretty much anything! But tell the children that it can sometimes be dangerous and we need to make sure we know how to stay safe on the internet. Tell the children that they are going to come up with a list of top tips for staying safe on the internet as a group. <u>Activity</u> Children sit at tables in groups. Teacher to play each of the Childnet SMART Crew videos in turn (http://www.childnet.com/resources/the-adventures-of-kara-winston-and-the-smart-crew). During each video, pause the clip each time one of the characters has to make a decision about what they should/should not do and ask the chn to suggest the answer. Children to turn this into a top tip (model for the first one) and add it to their group's poster. <u>Plenary</u> Share posters to the class. For each one, allow chn time to add any tips that they have not included in their poster.	Children can identify the risks of using the internet and know what they should do to stay safe online.	PSHCE
To click on hyperlinks to navigate to webpages.	<u>Main input</u> Model opening a webquest and explain that it has lots of information on it. Explain that some of the pictures and words are links that take you to another part of the webquest or take you to a website. Show how the cursor changes when hovering over a linked object. Click on a link that takes you to a video and model how to play	Children can navigate a webquest and recognise what is	Webquest could include information about any topic from

To click on sounds and videos online.	<p>it, skipping adverts if necessary on a YouTube video clip. Model how to draw information out of it by thinking aloud about something that I learnt when watching it. Rpt modelling for looking at a picture and rpt modelling for reading information on a simple website.</p> <p><u>Activity</u> Children write down as many facts as they learn about doing the webquest.</p> <p><u>Plenary</u> As a class, open up the same webquest on the iPads and model how it is very similar but we can only find out what has a link.</p>	linked and what is not.	another curriculum area.
To navigate a website.	<p><u>Main input</u> Tell the children that we can use a website to find out information, but they are not just one page! They have lots of pages in them to split up all of the information. Show a simple website with lots of links. (e.g. http://www.nhm.ac.uk/kids-only/) and model navigating it, pointing out that the linked words gives us an indication of what the next page will be about. Model using the 'back' button on the browser.</p> <p><u>Activity</u> Children have to find out information from different sub-headings and record them.</p> <p><u>Plenary</u> Was this website easy to use? Why? Show another series of websites and, based on how they look, decide if they will be helpful or hard to use.</p>	Children can independently navigate a simple, child-friendly website to find information.	Choose a website linked to a topic being studied - ensure websites are simple with unambiguous links.
To type in simple URLs.	<p><u>Main input</u> Explain that different websites have their own web address and for some websites, it is quick to type them in rather than try to find them. Model how to type in a URL</p>	Children can type in simple error-free	n/a

	<p>and discuss location of the dot and slash on the keyboard. Explain that most web addresses start with www. (world wide web) and that they never have spaces in.</p> <p><u>Activity</u> Give chn a list of simple URLs (e.g. www.google.co.uk, www.bbc.co.uk/cbbc etc) Chn enter a URL to open a website and record the name of the website.</p> <p><u>Plenary</u> Teacher to type in some URLs and ask chn to spot the mistake (e.g. comma instead of dot, using spaces, only 2 'w's etc).</p>	URLs to open websites.	
To use a range of sources to find information.	<p><u>Main input</u> Review using webquests, navigating websites and typing in URLs. Tell the children that they have these 3 skills to research their given topic today.</p> <p><u>Activity</u> Children research a given topic with a series of headings to fill in. Provide children with a new webquest and a list of URLs to simple websites.</p> <p><u>Plenary</u> They evaluate how easy it was to find certain pieces of information and which parts were tricky to use. Children then share what they have learnt.</p>	Children can navigate webquests, websites and type in URLs.	Children to research a topic linked to another curriculum area.

Subject: Computing

Year Group: 2

Unit: Code (CS2a)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To give and follow verbal directions.	<p><u>Main input</u></p> <p>Explain that when we are programming a computer to do something, we must use a computing language that it understands, and this is called code. One such coding language is used in LOGO and tell the chn that the computer only understands certain movements – forward, backward, left turn, right turn. Review turns and teach the angles they need for each (a quarter turn = 90, half turn = 180) and explain how LOGO understands angles (e.g. right turn 90 degrees). Model task and set expectations.</p> <p><u>Activities</u></p> <p>Draw a giant maze on playground for chn to orally navigate – one person to be blindfolded, one person to orally give commands, e.g. (move forward one step, right turn 90 degrees, move forwards 3 steps). Provide cheat sheet for angles.</p> <p>Note, provide small maps in the classroom if raining and use small models to navigate the maze.</p> <p><u>Plenary</u></p> <p>Review angles by matching commands to angles. (e.g. quarter turn to 90)</p>	Children can orally give directions in LOGO language.	<p>Links to Y2 maths objective:</p> <ul style="list-style-type: none">• Use mathematical vocabulary to describe position, direction and movement including distinguishing between rotations as a turn in terms of quarter, half and three quarter turns.
To enter simple LOGO commands accurately.	<p><u>Main input</u></p> <p>Review that computers only understand a certain language and review the words that they know LOGO recognises. Show how these link to the LOGO language, e.g. fd is forward. Repeat for all simple commands – FD, BK, LT, RT. Model typing in a</p>	Children can input multi-step commands correctly using spaces where necessary.	See above.

	<p>simple command using FD. Explain that I have to put a space – allow chn time to try this and ask them to try it without a space. Does this work? Why not?</p> <p>Chn to explore what each command does – why does LT not work on its own? What extra information does it need? Give chn time to explore using turns with angles cheat sheet.</p> <p><u>Activities</u></p> <p>Chn input a series of simple logo commands that they are given to produce a simple picture.</p> <p><u>Mini-Plenary</u></p> <p>Do we just have to put in one instruction at a time? What happens if we do more than one? Introduce idea of multiple instructions and model inputting 2-3 instructions at the same time and then checking.</p> <p><u>Plenary</u></p> <p>Show what the picture should be. Review idea of debugging – if it doesn't look right at the end, we have given it the wrong instruction. Can you scroll up and down to find any of your buggy code? How should you have done it?</p>		
To write simple LOGO commands.	<p><u>Main input</u></p> <p>Review simple LOGO commands. Model inputting some incorrectly, e.g. without spaces. <i>What is the problem here?</i> Tell the chn that now we need to begin to write our own LOGO codes. Ask a series of questions, e.g. <i>If I want it to move forward 7 spaces, what do I type in?</i> Move on to 2 or 3 step instructions as chn become more confident in this.</p> <p><u>Activities</u></p> <p>Chn follow a series of challenges to draw a picture – e.g. <i>can you make the turtle move forward 10 spaces? Can you make the turtle turn right 90 degrees?</i> Etc until a picture is revealed.</p>	Children can translate verbal instructions into LOGO coding language.	See above.

	<p>HA chn to be given multi-step instructions to translate, e.g. <i>Can you make it move forward 3 spaces and then turn right 90 degrees?</i></p> <p>Chn could evidence by writing their LOGO code next to each step – this will help to debug at the end.</p> <p><u>Plenary</u></p> <p>Show the picture and ask the chn if they achieved this. <i>If not, why not? What was different? Can you highlight the buggy code on your sheet that you wrote down? What should it be?</i> Introduce CLS command to clear and retry.</p>		
To follow LOGO commands to draw simple shapes.	<p><u>Main input</u></p> <p>Review teaching from last week by asking multi-step questions, e.g. <i>Can you make it move forward 5 spaces and then turn left 90 degrees?</i> Tell the chn that you will be making your own shape today. <i>Show a rectangle on squared paper – how could I make this?</i> (Provide angle labels) Model counting the squares to generate fd commands, looking at the angles and then generating the multi-step instructions.</p> <p><u>Activities</u></p> <p>Provide chn with a series of shapes to create.</p> <p>Some (HA) – no angle labels provided Most – provide angle labels Some (LA) – provide angle and fd labels.</p> <p><u>Plenary</u></p> <p>Teacher to type a command and ask the chn to guess which shape it is using labelled pictures to support. <i>How do you know?</i></p>	Children begin to visualise shapes and generate instructions.	See above.
To use the 'pen up' command.	<p><u>Main input</u></p> <p>Review re-creating a rectangle on LOGO by asking chn to tell you the multi-step commands. Next, tell the chn that the 'turtle' doesn't have to make a line. Model</p>	Children can use the PU and PD command.	See above.

	<p>using PU and PD command to lift the pen up and down. Show how this means you can make 2 shapes by modelling making one shape, lifting pen up and then moving to the next starting place before putting pen down and creating next shape.</p> <p><u>Activities</u></p> <p>Some (HA) - Chn to create a pattern of simple shapes, e.g. square, rectangle, square, rectangle with a gap in between.</p> <p>Most – Chn make a square and a rectangle next to each other with a 2 square gap.</p> <p>Some (LA) – Chn are given a ‘cheat sheet’ with picture and instructions labelled on the shape.</p> <p><u>Plenary</u></p> <p><i>Can you make a square with a dotted line?</i></p>		
To use LOGO commands to draw simple shapes.	<p><u>Main input</u></p> <p>Review commands, including PU and PD from last week. Next, show a picture produced on LOGO and tell the chn you are going to re-produce it. Model thinking aloud about the commands and labelling the image first. Then model entering multi-step instructions into LOGO to begin to produce the image. After inputting 2/3 steps, model looking at the image and checking that it is right. If not, cls and start over. Emphasise the need to write down the steps as you do them so if you have to start again you already have the bits that work to copy back on.</p> <p><u>Activities</u></p> <p>Some (LA) - Provide chn with a picture that they have to reproduce on the screen with labels and an angles cheat sheet</p> <p>Most - Provide chn with a picture that they have to reproduce on the screen</p> <p>Some (HA) – Can you draw a picture of a block of flats with 6 windows and a door?</p>	Children can independently reproduce an image on the screen.	See above.

	<u>Plenary</u> Review their code – <i>is there any that did not work? Why not?</i> Ensure all code is debugged and chn have written down their code.		
--	---	--	--

Subject: Computing

Year Group: 2

Unit: Control (CS2b)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To follow multi-step spoken instructions	<u>Main input</u> Explain to children that robots only follow the commands that they are given. Recap directional language with children: forward, back, turn left, turn right. Set out a large maze on the playground and get children working in pairs with blindfolds on to navigate a path. Tell children that we can be more efficient by giving more than one instruction at once, e.g. forward 3 steps, turn right, forward 2 steps. Model giving a multi-step instruction to a volunteer. <i>Did they follow my instructions correctly?</i> <u>Activity</u> Give children a speaking frame for their instructions and let them practise again navigating a partner around the maze. Get children to jot down their commands on a whiteboard so they can refine the commands. <u>Plenary</u> Introduce the concept of debugging: looking at their instructions and correcting mistakes and making them more efficient.	Children can give and follow multi-step instructions	Maths – directional language.

<p>To program a BeeBots using multi-step commands</p>	<p><u>Main input</u> Recap multi-step instructions from the week before and then introduce the BeeBot to children. Explain how it works – pressing the direction buttons will add to its list of instructions until you press ‘clear’ to cancel them. Address misconceptions, such as pressing right to make it move to the right, instead of turning and then moving forward.</p> <p><u>Activity</u> Children then to work in small groups to design a simple maze on a large sheet of sugar paper and then give instructions on a BeeBot to navigate the maze. Get children to write down the finished commands to navigate their entire maze in one go.</p> <p><u>Plenary</u> Chn swap groups and navigate their maze. <i>Were they correct? Is there anything we need to debug?</i></p>	<p>Children can program multi-step instructions into a BeeBot</p>	<p>Maths – directional language.</p>
<p>To program a BeeBots using multi-step commands</p>	<p><u>Main input</u> Explain that giving a BeeBot a set of commands is called programming. A computer needs a set of commands in order to know what to do. Model using the BeeBot app on iPad and how to complete levels by inputting commands. Address misconceptions and talk about debugging our mistakes.</p> <p><u>Activity</u> Children to use BeeBot app on iPad to complete levels using multi-step commands. Reward those children who are able to complete levels using accurate multi-step commands. Address this using mini plenaries and guided support.</p> <p><u>Plenary</u> Show children A.L.E.X and ask the children: <i>how do you think you can make A.L.E.X move?</i> Focus on key vocabulary and applying knowledge from using BeeBots.</p>	<p>Children can complete BeeBot (iPad) levels using multi-step commands</p>	<p>Maths – directional language.</p>

<p>To enter multi-step code using additional commands.</p>	<p><u>Main input</u> Recap directional commands and key vocabulary: forward, back, turn left, turn right, go. Model to children the iOS app A.L.E.X. and how you can only complete levels using multi-step commands. Make some deliberate mistakes and ask pupils to help you debug them.</p> <p><u>Activity</u> Give children time to complete as many levels of A.L.E.X. as they can, entering multi-step commands. Go over some basic ground rules on how to handle and use iPads safely. Ask children to take a screen-shot of a level they have completed successfully and then paste it into Pages and then print.</p> <p><u>Plenary</u> Using an A.L.E.X. level that you have designed yourself, and then work together as a class to write the instructions to complete it.</p>	<p>Children can enter multi-step commands on A.L.E.X.</p>	
<p>To use if-then commands.</p>	<p><u>Main input</u> Introduce a new app Kodable, explaining that it's another programming app, but with slightly different rules. Begin on Smeeborg level and show children how to input instructions to help the fuzz collect coins. After two games, the 'if-then' command becomes available. Explain how this is a statement that causes other statements to execute under certain conditions. Demonstrate how you can set it so that when the fuzz goes onto the yellow square it must go down. Model what happens when the if-then command is ignored.</p> <p><u>Activity</u> Give children time to use Kodable and the if-then command. Help children to select the correct mode in the Kodable app (children mode and then creating a user). Ask children to take a screen shot of their learning, paste it into Pages and then type their name underneath and print on an appropriate printer (or to the server).</p>	<p>Children can complete Kodable levels using if-then commands</p>	

	<p><u>Plenary</u></p> <p>By going into the 'Adult' mode on Kodable, it is possible to unlock all levels (under settings). Do this on your iPad to unlock 'Loopy Lesson'. Introduce the idea of 'loops' in order to make your code more efficient and ask the chn: <i>what it does, why it is more efficient etc.</i></p>		
<p>To create own level in A.L.E.X. and then write multi-step instructions for completing it</p>	<p><u>Main input</u></p> <p>We are now going to use all the programming techniques we've practiced in order to help use create our own level on A.L.E.X. Once we've made our level we need to write our instructions so that somebody else can complete it. Model tapping on 'Create' and then creating a level. The only available pieces are 'slider', 'basic floor', 'start place', 'end place' and 'breaking floor'. Demonstrate to children how to layout a simple level and then play it to debug.</p> <p><u>Activity</u></p> <p>Give children time to create their level and then program in the instructions to complete it. Challenge children on how they could make their level more difficult. Remind chn of the need to debug if the robot doesn't move in the desired way.</p> <p>When children are finished, get them to take a screenshot, paste it into Pages and print.</p> <p><u>Plenary</u></p> <p>Share back different children's levels to the class. Allow children to try out each other's levels and see if they can complete them.</p>	<p>Children can create their own level in A.L.E.X. and then write instructions for completing it.</p>	

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To evaluate photos and know how to take a good photo.	<p><u>Main input</u> Introduce the new topic to the children. Provide a range of good photos and bad photos (bad lighting, composition, too close, too far, blurry, taken at a 'wonky' angle etc, including people and landscapes) Ask the children to sort them into 'good' and 'bad' photos. Ask the chn to explain why they think they are good/bad. Use this feedback to draw out a "What Makes Good (WMG) photo" list (to become steps to success for the rest of the unit).</p> <p>Model using the WMG photo list to take a good photo of a person</p> <p><u>Activity 1</u> Children use simple digital cameras to take a good photo of a person.</p> <p><u>Mini-plenary</u> Model using the WMG photo to take a good photo of a landscape.</p> <p><u>Activity 2</u> Children to use simple digital cameras to take a good photo of a landscape</p> <p><u>Plenary</u> Children to look at their best photos and self assess against WMG photo steps to success.</p>	Children recognise what makes a 'good' photo and begins to be able to take a 'good' photo using a simple digital camera.	Art (composition, colour etc with lots of shared vocab, e.g. bright, dark)
To take photos using a range of devices.	<p><u>Main input</u> Review using WMG photo steps to success from last lesson to take a good photo with the chn giving instructions (could use a puppet?) Ask the chn to suggest the different devices that can take photos. Model how to use the different devices to</p>	Children can take good photos on a range of different devices.	Art (composition, colour etc with lots of shared vocab, e.g. bright, dark)

	<p>take a good photo, referring to the steps to success throughout – iPad, iPod, digital camera and iSight cameras on iMacs, using Photo Booth and Purple Mash cams.</p> <p><u>Activity</u> Children complete a carousel of activities to take good photos using a range of devices - iPad, iPod, digital camera and iSight cameras on iMacs, using Photo Booth and Purple Mash cams.</p> <p><u>Plenary</u> <i>Which device did you find easiest to use? Why? Which one makes the best photos? Why do you think this?</i></p>		
<p>To import and organise images in iPhoto</p> <p>To be able to crop and rotate photos to edit them</p>	<p><i>In preparation for this lesson, children need to have taken a series of photos (could be of a trip, school event etc) on iPods or digital cameras. Ideally, children will have access to two or three different sets so that they can organise them in the lesson (e.g. one set of a school trip, some photos taken of the school/each other etc).</i></p> <p><u>Main input</u> Model how to plug in the device and import photos into iPhoto (iPod will automatically open, digital camera needs to be opened and photos dragged and dropped). Model clicking on ‘events’ and organising photos into events (can use events > create event on menu bar). Model renaming the events, so that they are more relevant.</p> <p><u>Activity</u> Children import and organise their photos into events.</p> <p><u>Mini-plenary</u> Tell the chn that we can edit photos so that they are better. Show a photo that was taken from too far away. Ask the children what is wrong with the photo. Model the thought process of deciding where it should be cropped (explaining this vocab) so</p>	<p>Children can import photos and organise them using iPhoto. Chn understand that editing can improve photos. Children can crop and rotate photos that need this.</p>	<p>Art (composition, colour etc with lots of shared vocab, e.g. bright, dark)</p>

	<p>that the focus is in the middle and less background is used. Rpt for a photo that is taken with the camera at the wrong orientation and model rotating.</p> <p><u>Activity</u> Children drag and drop some 'practice' photos into iPhoto that need to be cropped or rotated and edit accordingly.</p> <p><u>Plenary</u> Children find photos in iPhoto they have taken but need to be edited – <i>can you edit them now so that they are better?</i></p>		
To add images into a comic strip	<p><i>Children will need photos of a sequence of events (provided by teacher).</i></p> <p><u>Main input</u> Model opening Comic Life and introducing what it can do. Model choosing a template, thinking aloud about choice of template regarding number of images, layout etc. Model how to access photos that the children have taken and inserting these (if photos are in iPhoto, show chn how to access the events they have made). Model adding text.</p> <p><u>Activity</u> Children create a comic strip using photos provided.</p> <p><u>Plenary</u> Children use the comic strip they have made to orally tell a story.</p>	Children can create a comic strip using Comic Life.	
To plan and take photos for a comic strip.	<p><u>Main input</u> Tell the children that today they will be making their own comic strip to retell a story/ series of events. Model using a storyboard to plan their comic strip (use a</p>	Children can import, edit and use photos to create a comic strip.	The story chn act out could be linked to any area of curriculum – a story read in English, a story learnt in

	<p>printed, blank Comic Life templates). Set children into groups and allow time to storyboard.</p> <p><u>Activity</u> Children plan their comic strip in pairs/groups (number to depend on chn needed for the acting of the story). Teacher should provide a printed blank version of the template they will use in ComicLife.</p> <p><u>Mini-plenary</u> Quickly review steps to success for WMG photos. Tell the children that they now need to take photos for their storyboard. Model one example, pretending to take a bad photo and asking chn to help make it better.</p> <p><u>Activity</u> Children need to take the photos that they need using iPods.</p> <p><u>Plenary</u> Children assess their pictures against steps to success.</p>		History/RE, a school trip, a school event etc.
To construct a comic strip.	<p><u>Main input</u> Review what chn did last lesson and quickly review how to import and edit photos. Quickly review using these photos in Comic Life, referring back to the plan completed last lesson.</p> <p><u>Activity</u> Children import, edit and use photos to create their comic strip. Use mini-plenaries to encourage chn to add extra features, e.g. text and speech bubbles.</p> <p><u>Plenary</u> Children share their comic strips with others in the class and use it to orally retell their story.</p>	Children create a comic strip of their story.	See above.

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
<p>To understand that we can organise data into tables and graphs.</p> <p>To create a simple pictogram in 2Count</p>	<p><u>Main input</u></p> <p>Show children a table of data. What is this telling us? Ask children some question about the data, e.g. “Which eye colour is most common?” Then show children a pictogram of the data. Does the chart help us understand the data more easily? Explain to children what a pictogram is, i.e. each picture block represents a number. Model how 2Count works, how you click on the icon to increase each bar. Clicking the ‘New Document’ button gives a range of different objects that can be counted.</p> <p><u>Activity</u></p> <p>Set children the task of answering the question, “What is the favourite fruit in our class?” Get children to collect data from each other in the class using a simple tally chart (the fruit on 2Count is: apple, banana, grape, kiwi, pear and strawberry). Then ask children to create a pictogram on 2Count of their data, making sure they label the title of the chart.</p> <p><u>Plenary</u></p> <p>Using a completed pictogram, get children to answer simple questions about what the data shows.</p>	<p>Children understand that information can be organised into a table.</p> <p>Children can create a pictogram in 2Count.</p>	<p>Maths – creating graphs, reading data and graphs.</p>
<p>To enter data into 2Graph to create a simple bar chart.</p> <p>To rename the title and axis of my graph.</p>	<p><u>Main input</u></p> <p>Explain to children that we can use 2Graph to create simple bar charts. <i>Can anyone tell me what a bar chart is?</i> Using a working example, explain to children that it is a way of displaying data about the frequency of different categories, where the height of the bar represents the number. Model how to use 2Graph to make a bar chart – show children how to select the type of chart from the toolbar, inserting given data to generate a simple bar chart, where data is entered on a</p>	<p>Children can enter data to create a simple bar chart, renaming the title and axes.</p>	<p>Maths – creating graphs, reading data and graphs.</p>

	<p>table on the left and the chart is created on the right. When modelling, use this to write 'steps to success' for a graph.</p> <p><u>Activity</u> Give children some existing data and get them to enter it into 2Graph to create a bar chart.</p> <p><u>Mini-plenary</u> As children finish this, model and explain the importance of accurately labelling their axes and giving the chart a title and add these to the 'steps to success' for a bar chart. Allow chn time to complete this.</p> <p><u>Plenary</u> Children to print off their completed graph and self-assess against 'steps to success' for an effective bar chart.</p>		
<p>To create a simple table in Numbers and enter data into it.</p>	<p><u>Main input</u> Review the graphs the children made last week and their purpose. Introduce children to the application 'Numbers' (could use on iPads, iMacs or Excel on a PC). Explain that it has a canvas (a bit like an enormous piece of white paper) onto which you can put things like tables, charts and text. Model for children creating a new blank document. When you click on a table, you then get more options: the black circle at the top left can be used to drag the table where you want; the corner button on the bottom right you can use to change the size of the table (the number of rows and columns required). Also explain to children about the header column and row (in grey). Explain why it is important to put the category names in here. Model inputting data, heading names and how to resize columns so that all the data can be seen.</p> <p><u>Activities</u> Give children some data and ask them to enter it into a table on Numbers. Use</p>	<p>Children can enter data into a table, making sure it is presented appropriately.</p>	<p>Maths – creating tables and reading data.</p>

	<p>mini-plenaries to remind chn that they can change the size of the table once the data has been input.</p> <p><u>Plenary</u> Look at the tables they created and explain why a title is important. Model how to add title to their table and allow chn time to do this. Make sure children save their work in an appropriate place to re-use next week.</p>		
To use data in a table to generate a graph, adding a graph title and labelling axis.	<p><u>Main input</u> Open a successful example of a table from last week and use this to review what a table shows and therefore what it needs to have. Explain that we are now going to make a bar chart from our data, just like we did in 2Graph. Model how to select the cells in the table and then click 'Chart' in the toolbar to create a bar chart. Explain that we now need to label the title and the axis and model how to do this: click on 'Format' in the toolbar, then tick 'Title' under the 'Chart' tab and then 'Axis Name' under the 'Axis' tab (for X and Y axis). Double click text to edit it. Use the handles to resize them and click and drag to move them.</p> <p><u>Activity</u> Children to create a chart from their table.</p> <p><u>Plenary</u> Model looking at one example and drawing out facts, e.g. <i>I can see that strawberry was more popular than vanilla, but chocolate was the most popular ice cream.</i></p>	Children can create a graph in numbers, adding a graph title and labelling axis.	Maths – Creating and reading graphs.
To collect data in response to a problem/question.	<p><u>Main input</u> Explain to children a question/problem that we are going to use our data skills to answer, e.g. What is the most popular breakfast food in the class? Explain that to answer the question, we are going to collect our data, put it into a table, create a chart from that and then make sure it is all clearly presented. <i>What data do we need to find out? How could we record this data?</i></p>	Children can collect data in response to a problem/question.	<p>Maths – Collecting and presenting data in a table.</p> <p>Could tie in question/problem to</p>

	<p><u>Activity</u> Children collect data in a simple table.</p> <p><u>Plenary</u> Quickly review how to make a table in numbers. Children input their data from their written table in to Numbers.</p>		creative curriculum topic.
To present data to find the answer to a given problem.	<p><u>Main input</u> Quickly review making a table and selecting the data to be made into a graph. Model quickly how to and why we ought to name the graph, table and axis. Remind chn of the steps to creating a successful graph.</p> <p><u>Activity</u> Children finish entering data into a table and then creating a chart. Have regular mini-plenaries to address any common obstacles children are facing and remind them of the need to label their graph.</p> <p><u>Plenary</u> Save all spreadsheets. Ask chn if we have been able to answer the given question/problem. <i>What is the answer? What else did we learn? Is this the same for everyone?</i> Chn share their data and note any similarities or differences.</p>	Children can present data to find the answer to a given problem.	Maths – presenting data in tables and graphs.

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To understand how to use a web browser.	<p><u>Main input</u></p> <p>Introduce new topic to pupils. Explain to them we will be creating a presentation on given topic using research on the internet. Explicitly discuss the importance of e-safety with pupils. What should pupils do if they come across inappropriate content, including pop ups. Children discuss and feedback. Teacher to clarify as necessary.</p> <p>Open web browser to school website. <i>What buttons can you see?</i> Point out and ask chn what the following features are: Navigation buttons, search/address bar, other tabs/menu buttons. Pupils discuss in mixed ability pairs and feedback – <i>What are these used for?</i> Use feedback to address any misconceptions pupils may have.</p> <p>Model typing a given address into address bar. Make deliberate mistake of missing a dot or misspelling a word/letter. Highlight to pupils that links do not work if there are any errors. Explain to pupils they will be visiting these websites and navigating around them. Model doing so: <i>How do I open the other pages on the site? Now I have finished on this page, how do I get back to the first page?</i></p> <p><u>Activity</u></p> <p>Pupils enter a website in address bar given as hard copy. Children record an interesting fact they learn from each site, by navigating the site.</p> <p>Extension – Chn have erroneous URLs on their hard copy to correct.</p> <p><u>Plenary</u></p> <p>Children share one interesting fact they have found through their research with class.</p>	<p>Children can type a URL, navigate a simple website and retrieve information (review from prior learning).</p> <p>Children know how to deal with inappropriate content online.</p>	Research can be on topic related to any other curriculum area.

<p>To be able to find websites related to a topic.</p>	<p><u>Main input</u></p> <p>Last lesson you were given a website for your research. <i>How can we find other/better websites for our topic?</i> Children discuss in mixed ability partners and feedback. Elicit from children we can look up the topic related terms in a search engine called Google. Explain that we should use Google because it has been set to be safe. There are lots of websites that do the same thing but this is the safest.</p> <p>Model searching for a topic like the Romans. Using thinking aloud explain how to choose the most appropriate website. Explain to pupils we can read the blurb under each link to work out if it will be the best website for our purposes. If we think more than one website will be useful we can look at one and then navigate 'back' to the search results.</p> <p><u>Activity</u></p> <p>Pupils choose a particular aspect of the topic they want to research. Or teacher could assign an aspect of the topic for specific groups of pupils to research.</p> <p><u>Plenary</u></p> <p>Pupils share best websites found as well as interesting facts they have found from their research. <i>Why was this the best website?</i></p>	<p>Children can generate a search to find appropriate websites.</p>	<p>Research project can be on topic related to English or Humanities</p> <p>Research project can be on topic related to English or Humanities</p>
<p>To navigate through a website</p>	<p><u>Main input</u></p> <p>Once we have found a good website on our topic, how can we use it to find further information about other aspects of our topic? (e.g. website about roman soldiers, how can it be used for finding information about Roman mosaics or diet?) Pupils discuss and feedback.</p> <p>Model clicking on the BBC website on Romans: http://www.bbc.co.uk/schools/primaryhistory/romans/</p> <p>Highlight the menu on the left. <i>What do you think each of these sections will tell us? Which link will tell me about the Roman army?</i> Provide the chn with a specific</p>	<p>Children can navigate through a website using hyperlinks and menus.</p>	<p>Research project can be on topic related to English or Humanities</p>

	<p>question to answer and ask them to tell you on which page you think you will find the information. Model clicking on relevant link and clicking through sub-menus find all relevant information to reach the answer. <i>How can I go back to the main menu to find out about something else?</i> Model clicking on back button as well as root menu to return to main menu.</p> <p><u>Activity</u> Children are given questions to answer on a given website (different to one from input). Children navigate through the menu to find relevant information.</p> <p><u>Plenary</u> Children choose one piece of information they found and explain to and show their partner how they found it.</p>		
To find an image online	<p><u>Main input</u> Tell the chn that later in the term, they will be making a project about a certain topic. <i>As well as presenting writing in our presentation, what other things could we add to make it more interesting?</i> Children discuss and feedback. Elicit from pupils we can include images. Discuss with pupils the importance/relevance of images. Images can be used to make our presentation look better and more interesting, but they can also show things that words would not be able to describe as well.</p> <p>Model searching for an image using Google, generating a search term. Remind chn why Google is the best search engine to use. Model copy and pasting images from Google images.</p> <p><u>Activity</u> Pupils find a photo and copy paste into presentation. (<i>E-safety note: provide lower ability spellers with a list of words to copy – children’s mis-spellings can bring up unwanted pictures!</i>)</p>	<p>Children can search for appropriate images using specific terms.</p> <p>Children can copy paste images.</p> <p>Children can save and insert images.</p>	Research project can be on topic related to English or Humanities

	<p><u>Mini-plenary</u></p> <p>Discuss with pupils it is important to be specific with the type of image we are looking. For example a Roman soldier marching or a Roman soldier with a sword. Recap briefly with pupils what to do if they come across an inappropriate image. Model filtering results using the size/type filters on google search under 'search tools'.</p> <p><u>Activity</u></p> <p>Pupils find specific images requested by pupils. E.g. a line drawing of a gladiator. Or clip art of the coliseum.</p> <p><u>Plenary</u></p> <p>Children share the images they have found with class.</p>		
To generate a simple search term	<p><u>Main input</u></p> <p>Quickly review browser and Google use. <i>I would like to create a presentation about the types of animals found in the rainforest. How can I find information and images related to this topic?</i></p> <p>Using a Google search engine, model generating a search term to find this information, thinking aloud about the need to be specific (point out if you type in a specific term how many search results Google finds). Repeat a second time, making a deliberate mistake of searching for a very broad term. Ask pupils: <i>how can we narrow down our search?</i> Generate more specific term and re-enter the more specific terms in the search engine. Highlight the difference in the results generated. Model choosing the most relevant website.</p> <p><u>Activity</u></p> <p>Pupils generate specific terms for research based on topic/question given by teacher. HA pupils could be given choice of generating their own topic.</p>	Children can narrow a search term to provide better results.	Research project can be on topic related to English or Humanities

	<u>Plenary</u> Pupils evaluate the search term used and results generated. Was it the best term to use? How could they have generated more specific results?		
To create a presentation (on a given topic)	<u>Main input</u> Recap key skills taught in the term so far (searching for websites, for images, copy and pasting pictures). Give pupils a question/topic to create a poster/presentation on. <u>Activity</u> Pupils use skills learnt in previous lessons to create the presentation. <u>Plenary</u> Chn share their presentations with a peer.	Children can apply skills learnt in previous lessons to create a presentation.	Research project can link to any other curriculum area – note, lesson could span two sessions and so could be completed in time allocated for the linked subject.

Subject: Computing

Year Group: 3

Unit: Control (CS3a)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To create simple code to control an object.	<p><u>Main input</u></p> <p>Ask children: <i>How does a robot work? How do we function?</i> Pupils discuss in pairs and feedback. Explain to children just like human brains control our movement, robots are controlled by instructions that we program into them.</p> <p>Explain to children we will be writing a set of instructions to program a motor to turn. Using a motor connected to the mac, model adding a play button. Using thinking aloud explain that when we click this it will tell the computer I am ready to carry out my code. However, the computer doesn't know what you want it to do when you press play. We are now going to add a block that makes the motor turn when start is played followed by a further block instructing it how long it should turn for.</p> <p><u>Activity</u></p> <p>Pupils program motor as modelled by teacher, exploring different rotations the motor can take and the period of time it can turn for.</p> <p><u>Plenary</u></p> <p>At the moment we are clicking play button to program the motor. <i>How can we add a code block for it to start in response to a movement in the room?</i> Pupils discuss and feedback, model adding block to utilise the motion sensor.</p>	Children can program a motor using the rotate block	
To build a model using Lego	<p><u>Main input</u></p> <p>Explain to children they will be creating a model from Lego, which they will</p>	Children can follow visual instructions to create a model.	Cross-curricular links to English, Science, Maths

	<p>program and control during the term. Model opening instructions booklet on iPads. Split children into groups of 3 and assign roles of reader (reads instructions), builder (builds robot) and checker (checks assembly). Model each child's role to pupils and explain to them they will rotate roles every 5 minutes.</p> <p><u>Activity</u></p> <p>Pupils build a model of the kicker in threes following instructions on Lego WeDo software.</p> <p><u>Plenary</u></p> <p><i>Why is it important to follow the instructions carefully? What do think would happen if you missed a step?</i> Children discuss in threes and feedback.</p>		depending on chosen model.
To use 'if'/'when' commands to determine how often/when an action occurs.	<p><u>Main input</u></p> <p>Recap with pupils how we controlled the motor last time. Pupils discuss in TPs and feedback. Explain to pupils they will be using their knowledge from the first lesson to program the robot they created last lesson. Ask pupils to remind you which block do we need to use at start to enable the code to work? How can we use the code from last lesson to make the kicker kick? Using pupil feedback model adding a motor turn block. Ask pupils to finish adding the rest of the blocks to make the kicker kick for a certain amount of time when play is clicked.</p> <p><u>Activity</u></p> <p>Pupils work together to program kicker. Use examples of unsuccessful code to model debugging to pupils. Model checking where the code has gone wrong by checking over code and changing one block at a time.</p> <p><u>Plenary</u></p> <p>Use pupil's model to demonstrate successful code. <i>How can we make the kicker respond to the motion sensor?</i> Recap with pupils, which code block responds to the motion sensor. Pupils add block to respond to motion sensor.</p>	<p>Children can program a robot to follow a set of instructions in response to stimulus from a sensor.</p> <p>Children can use the motion sensor to automate the kicker.</p>	

<p>To build a model using Lego</p>	<p><u>Main input</u> Explain to children they will be creating a second model from Lego, which they will program and control. Do you remember how we find the instructions booklet on iPads? Split children into previous groups of 3 and assign roles of reader (reads instructions), builder (builds robot) and checker (checks assembly). Model each child's role to pupils and explain to them they will rotate roles every 5 minutes.</p> <p><u>Activity</u> Pupils build a model of the goalkeeper in threes following instructions on Lego WeDo software.</p> <p><u>Plenary</u> Based on the components we have used what type of things do you think we instruct this model to do using the code blocks?</p>	<p>Children can program a robot to follow a set of instructions.</p>	
<p>To add a 'random' variable to my code.</p> <p>To use 'loop' or 'repeat' commands to create efficient code.</p>	<p><u>Main input</u> Explain to pupils that next lesson we will be playing a robot vs robot football game using the kicker we have built previous and the goalkeeper from last lesson. In a game of football how does a goalkeeper stop a goal? Use pupil feedback to explain that we need to program the goalkeeper to block the goal. Unlike in real life where the goalkeeper can see which direction the football is going the robot can't sense it. <i>So how could we write a piece of code to block the ball?</i> Elicit from pupils we can make him move left and right in front of the goal.</p> <p><u>Activity</u> Let pupils explore which code blocks they would use to make the goalkeeper move.</p> <p><u>Mini-Plenary</u> Use examples of unsuccessful code to ask pupils to help you debug. Introduce random code to pupils, explaining this will make the goalkeeper move for a random amount of time in each direction.</p>	<p>Children can program a robot to follow a set of instructions.</p> <p>Children can use the random and repeat command to make the goalkeeper move.</p>	

	<p><u>Activity</u> Pupils add random code block to their code.</p> <p><u>Mini-Plenary</u> We have to click play each time we want the goalkeeper to move. How can we make him continuously move? Introduce the repeat to pupils.</p> <p><u>Activity</u> Pupils explore adding the repeat loop to their code.</p>		
To write efficient code using 'when'/'if' commands to create a desired effect.	<p><u>Main input</u> Explain to pupils today they will be creating a robot vs robot game. We worked out how to use the repeat command to make the goalkeeper moving constantly. <i>How can we use to program to kicker to kick each time a ball is placed in front of the motion sensor?</i> Pupils add repeat loop to their original code for the kicker.</p> <p><u>Activity</u> upils test out the goalkeeper and kicker code by playing a match against each other.</p> <p><u>Mini Plenary</u> It would be great to include a way of counting the goals. Introduce the visual display code block to pupils. Explain that we can use a counter block to count how many times a ball goes past the goalkeeper. Model dragging the relevant blocks for the code.</p> <p><u>Activity</u> Pupils add a visual display code block and a counter to their code as modelled by teacher.</p>	<p>Children can use the visual display code to show goals.</p> <p>Children can use counter code block to count each time a new goal is scored.</p>	

	<u>Plenary</u> Pupils evaluate their code. <i>Is it the most efficient way of programming the robots?</i> <i>How could it have been improved further?</i>		
--	---	--	--

Subject: Computing

Year Group: 3

Unit: Visual coding (CS3b)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To use 'when' commands to respond to a stimulus.	<u>Main input</u> Introduce Hopscotch app to pupils, identifying the stage, when commands and possible action blocks on the left of the screen. Explain that you can program one or multiple characters to respond to the programming blocks assigned to them. In Hopscotch we can use many functions like: shaking/tilting iPad, tapping play button, tapping stage (screen) to execute a set of instructions. Model assigning an action to the character by choosing one of the 'when' commands, e.g. "When iPad is shaken". Ask pupils, <i>what could we make it do?</i> Model browsing through the code blocks on left to choose an action like "move distance: 300". Explain to pupils the stage is 700 x 900 and we can assign a distance within these attributes. Test out program to show pupils the program in action. <i>How could I make it move backwards? What other actions could I make the character do?</i> <u>Activity</u> Pupils explore applying the range of 'when' commands in combination with the available action blocks to program the character.	Children can use the 'when' command to program a set of instructions. Children can use the action blocks available to program a character to move in response to the 'when' command.	Maths/Geography: Co-ordinates Maths: Geometry

	<p><u>Plenary</u></p> <p>Use reflection tool to share children's characters in actions. Hide the commands and ask pupils to identify which 'when' command and action block was used by pupils to create the movement.</p>		
<p>To use multiple 'when' commands to respond to different stimuli.</p>	<p><u>Main input</u></p> <p>Review learning from last lesson. <i>What do we have to use at the start of our instructions to make the character do something?</i></p> <p>Explain to pupils you can assign multiple actions for a character to perform. <i>How could I make the character move in any direction that the iPad is tilted?</i> Pupils discuss in talk partners and feedback. Using pupil feedback, model assigning a 'move distance' action to character in response to the when command 'when iPad is tilted right' and then model adding a second one. Press play so that chn can see the effect.</p> <p><u>Activity</u></p> <p>Pupils program character to move left and right using two 'when' commands.</p> <p><u>Mini plenary</u></p> <p>Use reflector tool to share pupils' successful programs. Ask pupils to explore how they can make the character move up and down in response to the tilt command.</p> <p><u>Activity</u></p> <p>Pupils try to program the character to move up and down. Note: Most pupils will attempt to use the 'move distance' code block, however they will discover this only makes the character move along the x-axis.</p> <p><u>Mini-Plenary</u></p> <p>Ask pupils to feedback their experience. <i>Were any of you successful in making it move up and down?</i> Model using the term debugging to find out why the character is still moving left or right in response to the tilt up and down. Explain that we need</p>	<p>Children can program a character to carry out multiple actions.</p>	<p>Maths/Geography: Co-ordinates</p>

	<p>to make the character move along the y-axis in order to move up and down. Model how to create this piece of code.</p> <p><u>Plenary</u> Chn debug their code and observe the effect.</p>		
<p>To use 'when' and 'repeat' commands to program multi-step actions for a character.</p>	<p><u>Main input</u> Review prior learning: <i>How did we make the character move in different directions last lesson? What else could we make it do at the same time?</i> Pupils discuss and feedback. Using pupil feedback model adding multiple actions to the character in response to a single 'when' command, e.g. "when iPad is tilted left" move distance, grow by 50% and rotate 90°.</p> <p><u>Activity</u> Pupils program character to carry out multiple actions in response to a single 'when' command. Assign pupils a particular category to explore, e.g. "Movement" and "Appearance".</p> <p><u>Mini-plenary</u> Remind chn of prior learning of 'loops' in kodable. Explain that in Hopscotch, we use a 'repeat' command which does the same thing. Model how to use a repeat block and allow chn time to add these to make their code more efficient.</p> <p><u>Plenary</u> Ask pupils to share their multi-step programs with class. Pupils from each category explain what function each code block can perform.</p>	<p>Children can program a character to carry out multi-step actions in response to a 'when' command.</p>	<p>Maths/Geography: Co-ordinates</p>
<p>To consider the start position of characters and place them appropriately.</p>	<p><u>Main input</u> Review: <i>What is the stage? What is the size of the stage? How could I place my character at the bottom right corner of the screen at start?</i> Model placing it by dragging character on stage on screen. Chn spend some time positioning character on stage according to a set of co-ordinates given by teacher. Teacher to do 3-2-1-</p>	<p>Children can set start position of a character using the drag function as well</p>	<p>Maths/Geography: Co-ordinates</p>

	<p>Show Me to assess. Next, ask: <i>how can I change the position of my character once the program has started?</i> Draw out that we cannot use the drag function to assign multiple positions for the characters. Model changing the character's position by assigning x and y position using 'set position'. Explicitly model using the 'minus' value for both x and y to enable position to be set anywhere on stage.</p> <p><u>Activity</u></p> <p>Pupils assign multiple positions for the character. Teacher to provide a series of challenges.e.g start at centre, move to bottom right and then move to top left. Differentiate according to number of steps, use of minus for MA and HA etc.</p> <p><u>Plenary</u></p> <p><i>How could we hide the character off stage?</i> Allow chn time to explore if they are able to do this. Feedback and then model if necessary.</p>	<p>as 'set position' code block.</p> <p>Children can set multiple positions for character using 'set position' code block.</p>	
To use the 'move with trail' tool to draw lines	<p><u>Main input</u></p> <p>Review prior learning (using 'move' and 'set position' blocks) <i>How do you think we could make the character draw on screen for us?</i> Ask pupils to decide which category of code would apply, "Movement", "Drawing" or "Appearance".</p> <p>Explain to pupils we can use the 'move with trail' code block to draw lines in the direction that we make our character move. Ask pupils to trace a square on the floor in pairs, with one partner blindfolded. Provide key vocabulary like: forward, rotate, degrees for pupils to use. <i>What instructions did you need to give your partner?</i> Using pupil feedback, model drawing a square using the following code blocks:</p> <p>Set speed to 1000 move with trail distance 300</p> <p><i>What does this create on screen? How can we make the character turn to draw the next line of the square?</i> Model adding 'rotate degrees 90' block followed by</p>	<p>Children can use 'move with trail' code block to draw a shape.</p> <p>Children can use the 'repeat' loop to draw shapes with repeated lines.</p>	<p>Maths/Geography: Co-ordinates</p> <p>Maths: Geometry, angles.</p>

another 'move with trail distance 300'. Test out by allowing chn to create a simple square shape on their iPad.

Ask the chn: *How can I make it draw the full square in one go?* Pupils discuss and feedback. Model using the 'repeat' loop - remind chn of prior learning using the 'loop' code in Kodable and encourage chn to use the 'repeat' command in the same way. Explain to pupils all pieces of code placed within the repeat loop will repeat the number of times specified at the top of the loop. Model setting repeat to 4 times, explaining reason for this by tracing a square with finger, and construct code using, 'move with trail distance 300 and rotate degrees 90'.

Activity

Pupils create a square using the repeat loop/ move with trail code and explore how they can create other shapes. Provide angles for chn on diagrams, e.g. a triangle with the angles labelled.

Plenary

Use reflector tool to share the shapes pupils have created and examine the code.

To set a trail to produce a picture

Main input

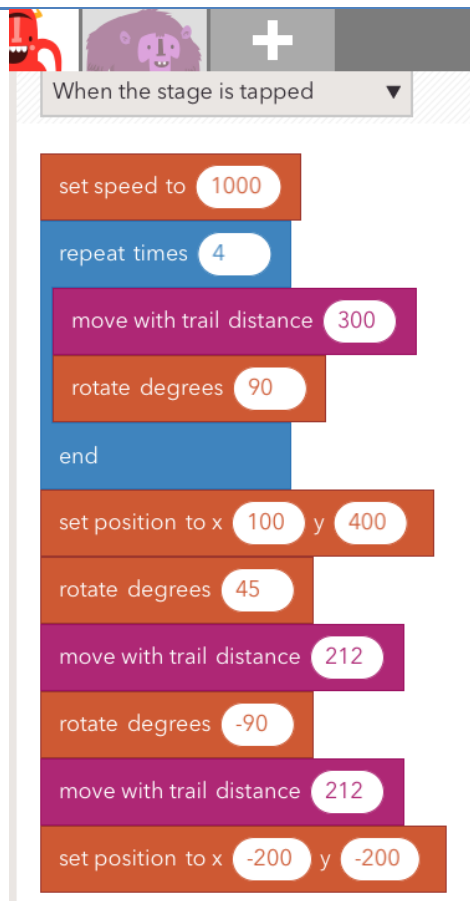
Recap with pupils some of the other shapes they created last lesson. *How can we use the code for creating a square and triangle to draw a house?* Explain to pupils once we have completed our instructions for a square we want a triangle on top create a roof. However, we don't want the character to leave a trail when it jumps to top left corner of square to start drawing the triangle. Therefore, we need to set position x 100 and y 400 (100 + 300 because our original square was 300). Use displayed code to create a house with a triangular roof and discuss the different elements with pupils.

Activity

Pupils copy a simple picture provided by teacher (should be differentiated) using the 'move with trail', 'repeat' loop and 'set position' code blocks.

Plenary

Use the reflector tool to share some of the pictures pupils have created. Analyse the code and discuss if the most efficient method was used to create all the shapes.



Children can use 'move with trail', 'repeat' loop and 'set position' code blocks to draw a picture.

Maths/Geography:
Co-ordinates

Maths: Geometry,
angles.

Subject: Computing

Year Group: 3

Unit: Visual coding (CS3c)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To set position using x and y co-ordinates.	<i>Over the unit, the children are working towards making a 'sorting' game where 4 sprites move around and the first to collide with a certain object (in this case the text object in the centre) determines the outcome, using random variables. This is</i>	Children can program multiple characters to move across stage	Maths/Geography: Co-ordinates

based on the 'sorting hat' from Harry Potter, but could be used to randomly assign children to a school 'house' or any other outcome.

Main input

Review features of Hopscotch app with pupils, identifying the stage, when commands and possible action blocks on the left of the screen. Explain that you can program one or multiple characters to respond to the programming blocks assigned to them. Link to Lego WeDo "play" button to explain the 'when' command. Remember we needed to click the play button to tell the computer we are ready to execute the command, in Hopscotch we can use many functions like: shaking/tilting iPad, tapping play button, tapping stage (screen).

Model adding 4 characters to stage and setting their start positions using the 'drag' option. Model assigning an action to one character by choosing 'when stage is tapped' command. Model browsing through the code blocks on left to choose the appropriate code block to make the character move "move distance 10 ". Explain to pupils the stage is 700 x 900 and we can assign a distance within these attributes. Test out program to show pupils the program in action. *How can I make it move continuously? How could I make it move backwards/up/down?* Model adding 'repeat' loop to make the character move until it reaches edge off stage as well as rotating character to make it face the direction it will be moving.

Activity

Pupils position 4 characters on stage (left, right, top and bottom). Pupils to code each character to move in opposite direction to its start position.

Plenary

Use reflection tool to share children's characters in actions. Ask pupils to identify which code blocks were used to create the movement.

using the 'repeat' loop.

<p>To add multiple sprites with different purposes.</p>	<p><u>Main input</u> Explain that, as well as importing characters, we can also import text objects and these behave in the same way as characters and have to be told what to do, when to exist etc. Model scrolling through the set characters to find the text object. Explain we can set the text object to display whatever we would like to show. Model selecting text object and set text to occur on a tap using “Tap to start”. Test program out by clicking play. Ask the children to explain what happened and which pieces of code told the sprite to perform each action (We can see that the text is visible and the characters will not move until I tap the screen).</p> <p><u>Activity</u> Pupils add text object and position on it in centre of screen. Allow chn time to explore the different places they could put the text object.</p> <p><u>Mini plenary</u> Challenge the children to add further text objects as labels for the names of the characters and position them below each character.</p> <p><u>Activity</u> Pupils add further text objects and position them according to characters on screen.</p>	<p>Children can import and customise a text object.</p>	<p>Maths/Geography: Co-ordinates</p>
<p>To assign the random tool to a variable.</p>	<p><u>Main input</u> <i>What did we do last lesson?</i> The characters were all moving at a set speed. <i>What if we wanted to have a race between all 4 to see which character makes it to the other end of the stage first? How could we set the characters to move at their own random speeds?</i> Allow chn to explore blocks before introducing the ‘set speed’ code block to pupils. <i>We can define speed individually for each character but how can we let the computer decide the speed?</i> Pupils discuss in talk partners and feedback suggestions for which code block could be used to generate this. Ask</p>	<p>Children can use random tool to set speeds for multiple characters.</p>	<p>Maths/Geography: Co-ordinates</p>

	<p>pupils: <i>what does the word random mean?</i> We can assign a random speed to each character by dragging it inside the set speed block. Model assigning random speed to each character and setting the speed between a 100 and 500. Explain to pupils, this will assign any random speed between those values to each character.</p> <p><u>Activity</u> Pupils set speeds for each character using 'set speed' and 'random' code blocks.</p> <p><u>Plenary</u> Share pupils program on screen. <i>Did you have any problems making the characters move? How did you debug it?</i></p>		
To program an action to occur in response to a collision.	<p><u>Main input</u> <i>How can we make the 'tap to text' respond to the characters that it collides with? Ask pupils to discuss in talk partners and feedback what could be done to the text?</i> Use feedback to model how the text value could be changed to display the name of the character the text is colliding with. Using the 'when tap to start collides with...' command, model how to set text to 'character name' for each of the 4 characters.</p> <p><u>Activity</u> Pupils program 'tap to start' text to display names of each character that it collides with.</p> <p><u>Plenary</u> At the moment when a character collides with the text it changes its value to display the name but it changes to the next character that collides with it. We want the text to display the 'winner' of the race. <i>How can we program the text to only display the first character that collides and then stay on that value?</i> Pupils discuss in talk partners and feedback. Use pupil feedback to model setting text position (x</p>	Children can program text object to display alternative text in response to a 'collide with character' command.	Maths/Geography: Co-ordinates

	<p>900 and y 100) to bottom right of screen to avoid any further characters colliding into it.</p> <p>Pupils then set position of text to bottom right of screen in response to a collision with character.</p>		
<p>To program an action to occur in response to a collision.</p>	<p><u>Main input</u></p> <p>At the moment when the character reaches the edge of the screen it stops. How can we make it disappear or appear fainter? Pupils discuss in talk partners and feedback which code block would control the visibility of the character? Model setting instructions for character when it collides with edge, set invisibility to 90.</p> <p><u>Activity</u></p> <p>Pupils set invisibility for each character in response to when it reaches the edge of the screen.</p> <p><u>Plenary</u></p> <p>Explain that we can set an action for the character when it collides with edge of screen. <i>How can we use the collide code again to make the character stop moving and appear at the corner of my screen when it collides with the text object?</i> Allow chn time to explore this. If necessary, model assigning 'when character collides with tap to start' set speed to 0 and set position to x 200 and y 200. Test out program to show how the character is placed at bottom of screen and stops moving when it collides with 'tap to start'.</p> <p>Pupils then set speed and position for each character using the 'when character collides with tap to start' command.</p>	<p>Children can set a character's action (invisibility) in response to its position on screen.</p> <p>Children can set a character's action (speed and position) in response to 'collide with a text object' command.</p>	

<p>To create a sorting game using the skills we have learnt this term</p>	<p><u>Main input</u> Present children with the challenge of creating a sorting game to decide which house new children should be placed in. Explain to pupils you would like them to achieve this by having the 4 houses (characters) race towards the center of the stage and the first character to reach has its name displayed.</p> <p><u>Activity</u> Pupils create a sorting game using the skills learnt throughout the term.</p> <p><u>Plenary</u> Share pupils' games on screen. Pupils peer assess success of their partners' code.</p>	<p>Children can use the combination of skills learnt during the term to create a sorting game</p>	<p>Maths/Geography: Co-ordinates</p>
---	---	---	--


Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To devise LOGO commands to draw given shapes.	<p><u>Main input</u></p> <p>Review prior learning: Look at the shape of a square – <i>what do we know about the angles of a square? How could we use this to draw a square?</i> Model drawing a square by hand and discuss the angle that the ruler must be used it. Review simple logo commands – fd, bk, lt, rt, cls, home. <i>How could we use these commands to draw a square?</i> Model writing the multi-step instruction for a square, emphasising that we don't need to type the commands in one at a time: fd 6 rt 90 fd 6 rt 90 fd 6 rt 90 rd 6 rt 90.</p> <p><u>Activity</u></p> <p>Children draw shapes using multi-step logo commands.</p> <p>Differentiate based on maths ability by providing drawings of the shapes with angles labelled as necessary.</p> <p><u>Plenary</u></p> <p><i>Can you help me draw a parallelogram?</i> Look at the drawing of the shape with the angles already labelled – <i>which sides need to be the same length? Which sides need to be different lengths? How much longer is it in this picture?</i></p> <p>Children to record learning in their process diary=, e.g. "This lesson I have learnt..."</p>	Children can use LOGO to create shapes.	<p>Maths – Framework links (Y3)</p> <ul style="list-style-type: none"> To recognise angles as a property of a shape or description of a turn. To identify right angles. Recognise that two right angles make a half turn, three make a three quarter turn and four a complete turn.
To use the repeat command.	<p><u>Main input</u></p> <p>Review how to make a hexagon on LOGO using a drawing with labelled angles to support. Look at the code – <i>which bits are repeated over and over again? How many times was it repeated? Why was it repeated 6 times?</i> Model how we can use the 'repeat' command to produce these. <i>Why is this a better code to use?</i></p>	Children can use the 'repeat' command to write more efficient code.	Maths – as above.

	<p><u>Activity</u> Children create shapes using 'repeat' command. Differentiate in the same way as last week.</p> <p><u>Plenary</u> Look at a series of different shapes (some regular, some irregular). <i>Which ones could we use the 'repeat' command for? Why? How do you know?</i> Look at the outline of a house – we could use the repeat command for some of it and then add another bit on the top – <i>what might this code look like?</i></p> <p>Children to record learning in their process diary.</p>		
To use the build command	<p><u>Main input</u> Review how to draw a hexagon using the 'repeat' command. Tell the children that we can teach the computer a new word in its coding language – model how we can “‘build’ the word ‘hexagon’ into LOGO’s language”. Model this by practicing the code normally first, then using the ‘build’ function to program this.</p> <p><u>Activity</u> Children to ‘teach’ LOGO how to make different shapes.</p> <p><u>Plenary</u> Children to record in their process diary: <i>You can use the build command to...</i> <i>You can use the repeat command inside the build box because...</i> <i>This is helpful because...</i></p>	Children can use the build command.	Maths – as above.
To edit a built procedure	<p><u>Main input</u> Review how to use the ‘build’ tool to “teach” the computer a new word in LOGO language. Model doing this, but put an incorrect command in. Try running it – <i>what has happened?</i> I need to find out what I did wrong and rather than starting over, I</p>	Children can edit commands they have built to suit a variety of purposes.	Maths – as above.

	<p>can 'debug' my code by using the 'edit' tool to look for the part that was incorrect and changing it. Model looking at the incorrect result and working out which part was incorrect, then model using 'edit name' to edit the contents of the build.</p> <p><u>Activities</u></p> <p>Children complete a series of challenges, e.g.</p> <p>Can you 'build' the word 'square' to produce a square? Can you edit it to make one that is half as big? 2 squares bigger on each side? Etc.</p> <p>Can you 'build' the word 'quadrilateral' to make a 4-sided shape? Now can you edit it to make another 4-sided shape?</p> <p>Record how to edit a built command in process diary.</p> <p><u>Plenary</u></p> <p>Look at a series of incorrect code – <i>can we check it will work before we run it by looking at it and thinking about what it will do?</i> Look at a series of 'buggy' code to debug.</p>		
To combine different procedures to write efficient code.	<p><u>Main input</u></p> <p>Review using 'build' to make a square. Next, model how we can begin to combine some of the other things we know to make a pattern. Model creating a line of code that uses the 'repeat' function with a build and a slight turn to make a repeating pattern, e.g. repeat 2 [square rt 5]. Discuss what has happened. <i>What happens if we repeat it 10 times? How many times do I need to repeat it to go all the way around?</i> (HA maths chn could work out that 360 degrees in a whole turn means $360/5 = 72$). Model how to use pu and pd to move around the screen.</p> <p><u>Activity</u></p> <p>Children explore making different repeated patterns of their own creation. Use mini-plenaries throughout to show different examples and discuss why LOGO produced on screen what it did. <i>How can we debug?</i></p>	Children can make a repeated pattern.	Maths – as above.

	<p><u>Plenary</u> Take screenshots to put in their process diaries – Model how to do this using cmd+shift+4 to grab a part of the screen. This can then be copied and pasted into the process diary.</p>		
<p>To combine build and repeat procedures to create a repeated pattern.</p>	<p><u>Main input</u> Review learning from prior lessons. Show the children their challenge for the lesson and review the idea of 'pu' and 'pd' to enable the picture to be created – children have to create a picture of a house with a tree and a sun. Allow chn time to draw their picture. Discuss how the different elements could be achieved, e.g. using the repeating turn pattern from last lesson to make a sun or the leaves on the tree.</p> <p><u>Activity</u> Children make their own picture.</p> <p><u>Plenary</u> Children print their final outcome. Children reflect on their final outcome, how they achieved it and give themselves 2 stars and a wish (in their process diary). Chn then print their process diary.</p>	<p>Children can create their own image using LOGO.</p>	<p>Maths – as above.</p>

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To understand that individual images can be combined to make a moving image	<p><u>Main input</u></p> <p>Explain to children that we will be learning to animation this half term. <i>What is animation? Has anyone ever watched an animation before?</i> An animation is made by combining together images, with small changes between each one, in order to create the illusion of movement. Modern cartoons do this using computer graphics, but it can also be done through drawing each frame or using stop-motion animation and plasticine. Show some YouTube videos explaining this idea and compare how they look: Disney animation https://www.youtube.com/watch?v=mhfp6Z8z1cl&safe=active and Aardman animation https://www.youtube.com/watch?v=fza5QdTfyxs&safe=active.</p> <p>It is also possible to make our own simple animations, without a computer, using flipbooks, where pictures are drawn one after the other, each picture a bit different to the first, to create some movement. Show a simple flip book and model to children how to use a flip book and model creating one, starting at the back so you can see through the paper.</p> <p><u>Activity</u></p> <p>Children try and animate a simple ball moving or a face smiling. (To make simple flip books for children to create, take one sheet of A4, fold it once in one direction and then twice in the other direction. Staple one end and then trim all edges. This should make a wide flipbook.)</p> <p><u>Plenary</u></p> <p>Share back children's work and discuss what children have discovered as they have tried to animate using a flick book.</p>	Children can combine images to make a moving image using a flick book.	Art/visual literacy.

<p>To use cameras and software to animate a simple object.</p>	<p><u>Main input</u></p> <p>Explain to children that we are going to use some software called ‘I Can Animate 2’ to do some animation using webcams. The stalk of the camera can be angled and then there is a ring on the lens to adjust the image. Model how to open the software, plug in the camera and then create a new project. Please note that animations are saved locally to that computer so children need to use the same computer each week.</p> <p>‘I Can Animate’ will select any built in camera, but you can select the USB camera by clicking on it under the list of cameras. Model how to begin to animate a simple object, e.g. a Lego man moving: To take a frame, click on the camera icon . It will then show a transparent image of the frame so you can see how much your image has changed for the next frame. This is called ‘onion skinning’. Model moving the object very slightly, thinking aloud about why this is necessary. Then, click on the camera button to take another frame. If the animation is moving too fast, you can change it by dragging the slider between the tortoise (slow) and hare (fast).</p> <p><u>Activity</u></p> <p>Give children some objects to animate with (perhaps LEGO figures or blocks) and ask them to experiment, making them animate moving across the desk. Support children and work with any misunderstandings.</p> <p><u>Plenary</u></p> <p>Share some children’s animations. <i>Could the motion have been any smoother? Was it too fast or slow? How could it have been improved?</i></p>	<p>Children can use animation software to animate simple objects.</p>	
<p>To plan a simple animated story.</p>	<p><u>Main input</u></p> <p>Introduce to children the topic for the animation that they will be creating. Children could either create their own complete story, or each group could make</p>	<p>Children can plan out a simple animated story using a</p>	<p>Links to narrative structure in English.</p>

	<p>part of a larger story (perhaps based on a well-known story). Emphasise that it is important to plan out an animation so we know what the movement we need to animate will be.</p> <p>Show children a blank storyboard and model how to draw in simple pictures to try and explain what will happen.</p> <p><u>Activity</u> Give children time to complete their own storyboards.</p> <p><u>Extended Plenary</u> Model how to create the prop using plasticine. Give children time to begin creating any props and backgrounds they might need for their animation.</p>	storyboard and create props needed.	
To record animations to tell a story	<p><u>Main input</u> Using the props, background and storyboard from the previous lesson, children to start creating their animation. Review how to use the animation software and camera to capture the 'frames', getting children to watch back what they have captured to see if the animation is what they were wanting to make.</p> <p><u>Activity</u> Children begin to record their animation. Support children and prompt with questioning as necessary. <i>Is it making sense? Can the motion be improved? Are you following the storyboard?</i></p>	Children can record animation to tell a story.	
To record animations to tell a story	<p><u>Activity</u> Continue recording animations. If children are having issues with elements of the animation process, reteach any skills required to overcome them.</p> <p><u>Plenary</u> Children export their animation (file > export movie).</p>	Children can record an animation to tell a story.	

<p>To export an animation to iMovie and add titles.</p>	<p><u>Main input</u></p> <p>Explain that now that we have filmed our animation, we need to add a simple title at the beginning to introduce the animation and say who made it. Model opening up iMovie, clicking 'Import' and then choose the movie.</p> <p>Model the process: Click on the 'Create' button and then click 'Movie'. Choose the blank template and give the movie a name. Select the animation clip you want to add to your timeline and then drag it in. To add a title, click on 'Titles' in the bottom left under 'Content Library'. Choose the one you want and then drag it over the start or end of your animation clips. Model editing the writing.</p> <p>When you have finished your animation, click 'Share' and then 'File' to save a copy onto the server.</p> <p>Give children time to import their animations and add titles.</p> <p>Watch back children's animations and give feedback</p>	<p>Children can export their animation into iMovie and add titles.</p>	
---	--	--	--

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
<p>To select a theme and add/delete slides</p> <p>To format text</p>	<p><u>Main input</u></p> <p>Introduce new topic to pupils. Explain to them they will be creating a presentation on a given topic. <i>Ask pupils: what a presentation is? What is its purpose?</i> Pupils discuss in mixed ability partners and feedback. Use children's feedback to explain that presentation can be in an oral format, however people often use a visual aid to support it. We will be creating our presentations using Keynote/Powerpoint. Ask pupils to share with partner what they know about the software and its uses.</p> <p>Model opening Keynote and choosing appropriate theme based on topic. Explain to pupils there are range of themes to choose from, and we can always choose a blank one too if we don't want a particular theme or want to customise it ourselves. With pupils' help, model creating title page with introduction to presentation and presenter's name. Model clicking on plus symbol to add new slide. We can choose the type of slide we want each time based on the information we will be presenting. <i>What if I change my mind about the order or want to delete a slide? How would I do this?</i> Asking pupil to help you, model making those changes. (right click to delete & drag and drop for reordering) Briefly model how to edit text using the format tab by clicking on text.</p> <p><u>Activity</u></p> <p>Pupils create a presentation about themselves, with specified number of slides by teacher.</p> <p><u>Plenary</u></p> <p>Children share their presentation with partner/class. Partner/class to feedback on appropriateness of the theme and layout of slides.</p>	<p>Children can select an appropriate theme for their presentation.</p> <p>Children can add, delete and reorder slides.</p> <p>Children can format text using the format tab.</p>	<p>Presentation can be related to an English or Humanities topic</p>

<p>To add appropriately timed animations to text.</p> <p>To consider the audience of a presentation when making decisions (<i>ongoing through unit from this lesson</i>).</p>	<p><u>Main input</u></p> <p>Recap last learning from last lesson. Explain to pupils that Keynote/PowerPoint allows us to animate the text, in order for it appear in different ways on screen. <i>Why would we want the text to appear via an animation rather than straight away?</i> Pupils discuss and feedback. Explain that we may want to create suspense or build up to the point we are marking. Or we want people to concentrate on one point at a time when presenting bullet points on a topic.</p> <p>Model clicking on text to animate it. Click on animate button and model choosing an appropriate animation under the build in tap. Explain this will animate the text when you first display this slide. Briefly explain use of action and build out tabs but explain to pupils for our purposes we won't be using the other 2 tabs. Click on preview to see the animation and model choosing a different animation and previewing again. Assign an appropriate time in seconds for the animation.</p> <p><u>Activity</u></p> <p>Pupils add text animations to the presentation they created last lesson, applying the skills modelled by teacher.</p> <p><u>Plenary</u></p> <p>Pupils share their favourite animation effect and give reasons why they chose it for a particular text.</p>	<p>Children can animate multiple texts.</p> <p>Children assign appropriate timing for the animation to occur.</p>	<p>Presentation can be related to an English or Humanities topic</p>
<p>To add media to a presentation</p>	<p><u>Main input</u></p> <p><i>Why might we want to include a sound or video clip in our presentation?</i> Pupils discuss in mixed ability TPs and feedback. Use pupil feedback to explain that sometimes we may have a piece of music/video relevant to our topic that we may want to share with our audience.</p> <p>Model adding a video clip relevant to topic by clicking on Insert>>Choose. Model browsing through the menu to find relevant folders to embed appropriate video clip into presentation. Explain to pupil media can also be inserted by clicking on the</p>	<p>Children can select and add music/video clips to their presentation.</p>	<p>Presentation can be related to an English or Humanities topic</p>

	<p>media tab, however the chosen video needs to already be in our music or video library. The insert option allows us to browse any file and import.</p> <p><u>Activity</u> Pupils add a sound and video clip to their presentation using file location given by teacher. Provide a series of different clips so that children have to make a decision about which one to use and why.</p> <p><u>Plenary</u> Children justify their use of video clip – <i>why did you choose that one? What was good about it? What does it add to your presentation? Could pictures or writing do this?</i> Allow chn time to change their mind if they want a different video clip.</p>		
To choose appropriate slide transitions	<p><u>Main input</u> <i>As well as the text which other aspect of our presentation might we want to animate? Why?</i> (Link to audience/purpose) Pupils discuss and feedback. Explain that we can add transition effects to our presentation to make it more engaging. Highlight to pupils it is important to click on slide in order to add transitions, unlike last week where we needed to click on the text to animate it. Model clicking on the animate tab and choosing a transition. Remind pupils that we can preview the transition on screen as well as by clicking the play button. Using thinking aloud explain to pupils that although transitions are engaging, we must ensure we don't over use them or use inappropriate ones. Show a bad example with long-winded transitions to prove this point!</p> <p><u>Activity</u> Pupils are given a poor example of a presentation that they must improve using the skills from the term, with particular focus on transitions.</p>	Children can add transitions to a presentation.	Presentation can be related to an English or Humanities topic

	<p><u>Plenary</u> Pupils display/share their presentations with peers. Pupils peer assess the quality of presentation using 2 stars and a wish – link to audience/purpose.</p>		
To create a presentation about a given topic	<p><u>Main input</u> Tell the children that they will be using their skills to create a presentation this week on a given topic. Quickly review what skills they have been taught this year and ask the children to use this to generate, as a class, success criteria for the presentation, for example use of images/video, transitions and text animation etc. Draw chn's attention to the purpose and audience and using suitable/sensible transitions.</p> <p><u>Activity</u> Pupils create a presentation on given topic</p> <p><u>Plenary</u> Chn to self-assess so far using success criteria – <i>what do you need to change next week to improve it? What do you need to add?</i></p>	Children can create a presentation, choosing an appropriate theme, animations, fonts and content.	Presentation can be related to an English or Humanities topic
To create a presentation about a given topic	<p><u>Main input</u> Briefly review success criteria for their presentation and remind them of what they decided ought to be changed/added at the end of the last lesson.</p> <p><u>Activity</u> Pupils finish off/further improve their presentation.</p> <p><u>Plenary</u> Pupils share their presentation with class/peers. Pupils to peer/self-assess presentation using success criteria written last week.</p>	Children can create a presentation, choosing an appropriate theme, animations, fonts and content.	Presentation can be related to an English or Humanities topic

Subject: Computing

Year Group: 3

Unit: Internet (DL3a/b)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To log on to my email account	<p><u>Main input</u></p> <p><i>Ask pupils what is an email? Why do people use emails? How is it different to writing a letter?</i> Pupils discuss and feedback.</p> <p>Recap with pupils what to do if they come across inappropriate content online. Discuss e-safety aspects of using email. It is important to keep our personal information like our username, password as well as our email address private. We wouldn't share our home address with strangers so we need to ensure we do the same without email accounts.</p> <p>Model logging into email account. Give children 2 minutes to discuss in mixed ability talk partners what each icon represents on the screen. Children feedback and teacher to explain purpose of any icons children are unsure of. Model logging out and highlight the importance of logging out, especially when using public computers.</p> <p><u>Activity</u></p> <p>Pupils practice logging in and out of their mail accounts.</p> <p><u>Plenary</u></p> <p>Sometimes emails can be more informal if we are casually talking to our friends. Discuss how the style of the email depends on the audience (writing for purpose).</p>	Children can log in/out from LondonMail	English – formal/informal language

<p>To open, read and close emails.</p>	<p><i>Before lesson: Teacher (or phase leader etc?) to email pupils about a topic they must respond to.</i></p> <p><u>Main input</u> Recap with pupils: <i>how do we log in to our mail account?</i> Pupils discuss in talk partners and feedback.</p> <p>Model logging and familiarise pupils with the layout of an inbox. Ask pupils to discuss in talk partners what they think each icon/section may be used for? Highlight to pupils how new mail sits in the 'inbox'. Click through the folders and discuss the purpose of each folder with pupils. Model opening email, reading content and closing it.</p> <p><u>Activity</u> Pupils practice logging in, opening and closing emails in mixed ability talk partners.</p> <p><u>Plenary</u> Pupils share any steps they found difficult to follow.</p>	<p>Children can open and close emails.</p>	<p>Topic – Pupils could write an email to SMT informing them about the topic they have been learning.</p>
<p>To respond to emails</p>	<p><u>Main input</u> Teacher logs in with help from children. Model replying to email from SMT, amending the subject field and using appropriate formal language. What questions might we ask? Pupils discuss in partners? Are all these questions appropriate? Model making a mistake and writing an inappropriate question.</p> <p>Ask children what would I do if I need to send the same email to 2 of my friends? Model using cc function.</p> <p><u>Activity</u> LA - Pupils work in partners to reply to the email in their inbox. MA/HA - Pupils reply to email and cc teacher.</p>	<p>Children can reply to an email</p>	<p>Topic – Pupils could write email to SMT informing them about the topic they have been learning.</p>

	<p><u>Plenary</u> Ask children how would I write an email to a fellow year 3 teacher? Which icon do you think is used to create a new email? Model clicking on appropriate icon to compose an email.</p>		
To create a new message	<p><u>Main input</u> Explain to children we will be writing to SMT about our learning in science. Model writing an email while thinking aloud. Highlight address and subject bars. Ask children how would you write an email to your partner? Model clicking on appropriate icon. Explain the importance of typing address accurately. Link it to physical addresses and how it must be accurate in order to reach the recipient.</p> <p><u>Activity</u> Children compose and send an email to their partners.</p> <p><u>Mini plenary</u> Close email by accident and ask children what might be a quicker way of emailing partner? How could we save the email address of our partner for future use? Model adding names to an address book.</p> <p><u>Activity</u> LA - Pupils work in partners to email each other MA/HA - Children compose an email to partner as well adding contact to address book.</p> <p><u>Plenary</u> I have just received an email myself from a friend. What type of language would I use? Highlight differences between formal and informal audiences. What should I write in response? Teacher composes email from their suggestions.</p>	Children can compose an email to a new address	Topic – Pupils could write an email to SMT informing them about the topic they have been learning.

<p>To compose emails with attachments</p>	<p><u>Main input</u> Explain to children the SMT have heard about what the class have been doing in Science/English/Topic. SMT would like to see photographs/documents produced by children in relation to topic. Ask children if they know what an attachment is? Elicit from children an attachment is same as receiving a package in the post or important documents. Explain to children they will be emailing SMT with an attachment about their learning. Model how to browse, locate and attach a document/photo.</p> <p><u>Activity</u> Pupils login to their email accounts and respond to an email request from SMT asking for their opinion on their topic.</p> <p><u>Plenary</u> Ask children to email teacher a document saved in a specific folder.</p>	<p>Children can compose an email with an attachment</p>	<p>Topic – Pupils could write an email to SMT informing them about the topic they have been learning.</p>
<p>To identify and deal with spam appropriately</p>	<p><u>Main input</u> What is e-safety? How can we stay safe online? Children to be presented with various scenarios involving e safety:</p> <p><u>Activities</u> 1) Fake email asking for their password from lgfl:</p> <p>Children will be given a fake email asking them to forward their lgfl password. Children to discuss in tps and feedback. Select some children to act out the correct response.</p> <p>Mini plenary: Pupils discuss what they should do. Discuss that pupils should tell an adult and that an adult will deal with it.</p> <p>2) Fake email about a toy they've ordered, asking for address:</p>	<p>Children know practical ways to be safe when using emails</p>	

Children will be given a fake email asking for an address for an online toy order. Children to discuss in tps and feedback. Select some children to act out the correct response.

3) Fake email asking what school they go to and who is collecting them at end of day:


Children will be given a fake email asking them for their school details and asking them who is picking them up at the end of school. Children to discuss in tps and feedback. Select some children to act out the correct response.

Subject: Computing

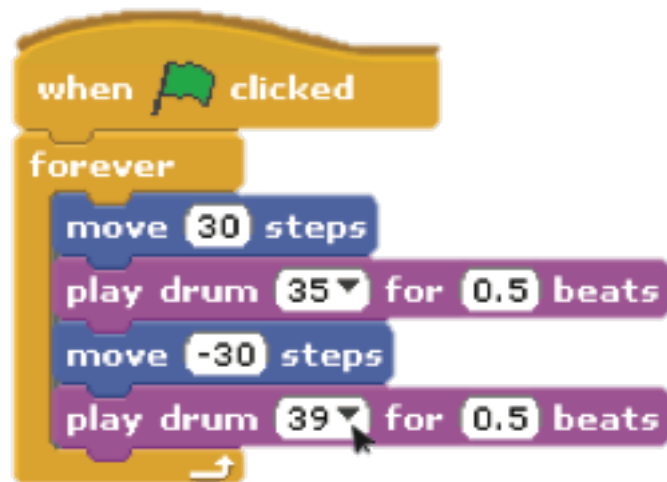
Year Group: 4

Unit: Visual coding (CS4a/b/c)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To make a sprite move to the left and the right in response to a user input.	<p><u>Main input</u></p> <p>Introduce Scratch – this lets you build code to command a sprite to move. Explain that the little fox character is the default sprite. Briefly point out the different areas of the programme including the tabs, blocks, build area and the stage. Model choosing the ‘when flag is clicked’ control block and explain what this does. Model choosing a motion and clicking it onto the control block and explain that this is because the computer needs to be told when to do something. Model how to use the steps, glide and change x/change y by blocks.</p> <p><u>Activity</u></p> <p>Ask chn to spend time exploring the difference between steps, glide and change x/y by using all of the different ways. Chn record the differences between the 3 on their process diaries.</p> <p><u>Plenary</u></p> <p><i>Can you make it move left and right repeatedly?</i></p>	Children can create a sprite that moves.	Chn must have a basic understanding of x and y co-ordinates (although they can see on the screen so it is not necessary to be able to do this unaided).
To add sound to a movement and link to an action.	<p><u>Main input</u></p> <p>Review making the sprite move in response to the flag being pressed. Model adding a sound to happen with each sound. Press the flag and observe what happens. Explain that I want this to keep on happening until I press stop, so it looks like it is dancing. Model finding the ‘forever’ loop (use this vocabulary with the chn)</p>	Children can create a dancing character.	n/a

and explain what a loop command does. Link this to prior learning in Python and Hopscotch. Model changing the sprite using the  button.

Example code:



Activity

Children programme their own dancing character.

Plenary

Children write in process diary: *I used a forever loop to...*

To create own sprite and make it change in response to an action.

Main input

Review making the character move in response to the flag click. Explain that we can make our own sprite! Model creating own sprite and switching between the two using the tabs. Model how to get the colour of the sprite to change in response to a key being pressed.

Children can design their own sprite and make it change colour.

n/a



Sample code:

Activity

Ask chn to design their own sprite and make it change colour in response to an action of their choice.

Extension: *Can you use the “change X effect by Y” to make the sprite gradually disappear? Can you make it disappear faster? Slower? Instantly?*

Plenary

Children record how to make a sprite in their process diary.

To make a sprite say something.

Main input

Tell the children that we want the sprite to be able to say something and that there are two ways to do this. *Ask the chn to explore and see if they can come up with some of the ways they could do this in response to the space bar being pressed.* Bring chn back together and model the two different ways that the sprite can be made to speak:



Children can make a sprite talk, either by producing a sound or by producing an on-screen speech bubble.

n/a



Activity

Chn to explore making their sprite say something and recording a sound for their sprite.

Extension: *Can you make it say something when the 'b' button is pressed? Can you make it say something after 10 seconds (using wait command)?*

Plenary

Chn explain the two different ways of making a sprite talk in their process diaries.

To plan a story and design the stage and sprites.

Main input

Explain that next week, chn will be using scratch to tell the story of the Hungry Caterpillar to younger children in Reception. Read the story and ask the chn to draw out each part of the story. Children very quickly to story board the story in groups. Next, model using thinking aloud about designing the stage, which needs to have all of the fruit on. Model how to do this and quickly review how to design the sprites from last week.

Activity

Chn design the stage and sprites on screen.

Plenary

Chn record their new skills on their process diaries and orally discuss what code they may need for next week.

Children design a stage and sprites for a specific purpose.

English – chn structure a narrative.


	Save code in a sensible place with names as file name to continue next week.		
To program sprites to tell a story.	<p><u>Main input</u> Review learning from last week and the storyboard. Tell children that they need to make their sprites move along the story using the keyboard. <i>How do you think you could do this?</i> Chn discuss the code they may use in TPs and then go to computers to create their outcome. Provide more modelling for LA chn if necessary.</p> <p><u>Activities</u> Children code their sprite to move in response to keys being pressed.</p> <p><u>Mini-plenary</u> Set additional tasks: Can you make your character say that he is hungry? How could you do this? Can you make the butterfly appear at the end? (Chn need to create an extra sprite which will appear when the 'b' button is pressed)</p> <p><u>Plenary</u> Save and self assess – <i>was my code successful? What did I find easy? What did I find tricky?</i></p> <p>Children then invite reception children to come and watch their story, whilst the chn orally tell the story.</p>	Children code a sprite to be able to tell a story.	English – oral retelling of a story. Using language to suit a certain purpose/audience.

Subject: Computing

Year Group: 4

Unit: Control (CS4b)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To build a model using LEGO	<p><u>Main input</u></p> <p>Recap with children about LEGO WeDo. <i>Can you remember what the WeDo software does? Do you remember what any of the blocks do?</i> Remind children that we can use the WeDo software to program instructions that the control blocks will follow. For the next two weeks we will be using two different blocks: a motor and a tilt sensor. Explain that the tilt sensor works a bit like the sensor in an iPad which detects the orientation of the device. Play children the video introducing the 'Airplane Rescue' model (click on the yellow brick in WeDo, then on the LEGO head and then on the airplane model).</p> <p>Model for children how to open building instructions on iPad (in iBooks). Split children into groups of 3 and assign roles of reader (reads instructions), builder (builds model) and checker (checks assembly). Model each child's role to pupils and explain to them they will rotate roles every 5 minutes. Reiterate the importance of making sure that all pieces of LEGO are kept safe.</p> <p><u>Activity</u></p> <p>Pupils build a model of the 'airplane' in threes following instructions on iPads.</p>	Children can follow visual instructions to create a model.	

	<p><u>Plenary</u></p> <p><i>Which steps on the instructions were hard to follow? How can we make sure we have built things correctly?</i></p>		
<p>To create a model where the motor is controlled using the tilt sensor</p>	<p><u>Main input</u></p> <p>Explain to children that today they will be using creating WeDo code to make the airplane model engine turn normally when it is tilted up and then ‘stall’ when the plane is tilted down. Get children to plug in the models created the week before using the USB cable and open the WeDo software. Point out to children that the tilt icon in the top left of the screen shows which way the tilt sensor is pointing. <i>How would you make the engine move when the plane is tilted up?</i> Give children time to experiment with their ideas.</p> <p>Model for children the suggested code (click the yellow brick, then the LEGO head, then the model and then follow the instructions along), talking through each of the elements.</p>  <p><u>Activity</u></p> <p>Children to work independently to get this working.</p> <p><u>Plenary</u></p> <p><i>How could you add a sound effect for when the plane tilts up or down? Where would this block of code have to fit in?</i> Let children experiment with how it could be done using the sound block. <i>What do the different numbers do underneath the sound block?</i> Allow chn time to explore before showing them the suggested code.</p>	<p>Children can program a motor using a tilt sensor.</p>	



To build a model using LEGO

Main input

Explain to children that we are now going to solve some problems using a 'spinner' model. This makes use of the motor and the distance sensor, which detects how far or close objects are. Play children the video introducing 'Smart Spinner' then model for children how to open building instructions on iPad (in iBooks). Split children into groups of 3 and assign roles of reader (reads instructions), builder (builds model) and checker (checks assembly). Model each child's role to pupils and explain to them they will rotate roles every 5 minutes. Reiterate the importance of making sure that all pieces of LEGO are kept safe.

Activity

Pupils build a model of the 'Smart Spinner' in three following instructions on iPads.

Plenary

How can we make sure that we are not missing any pieces of LEGO? Talk through the contents card in each kit as a way of checking nothing has gone missing.

Children can follow visual instructions to create a model.

To use the wait command to determine when an action occurs

Main input

Explain to children that we are going to be creating code today in order to make our spinning top work. Get children to plug the spinner models into WeDo using the USB cable. *Which sensors are showing up in the top left corner? Can you make the distance sensor work?*

Children can use a wait command to make the spinner work properly

Talk through with children the process of writing any code: *what problem are we trying to solve? What might the steps be to solve that problem?* Work with children on defining clearly the design problem: making the motor on the spinner turn the top, but then stop when the top is released.

Activity

Set children the first challenge – *how do you make the spinner turn round?* Allow children to experiment, then share the code.



How could we make the motor stop? Allow children to explore and then share back children's ideas.

Mini-plenary

Introduce the 'wait' command, which makes the code wait for a certain amount of time or for an input from a sensor. *Can you add this into the code?*



How could we add some sound whilst the motor is turning? Which number makes the sound we want to use? Share back ideas and then model the code.



Allow chn time to explore this within their own code.

Plenary

Would it make any difference the types of cogs you use? Or the speed that the motor turns?

To use an on-screen display to create a timer

Main input

Use the spinner model from the previous weeks. *Can you remember what you need to program in to make the spinner work properly?* Give children time to recall what was learnt from the previous week.

Children can code an on-screen timer.

Science – materials

This week we are going to work out the code so that we can conduct a scientific experiment to see what the best surface for spinning the top on is. To do this, we need to write some code to make an on-screen timer so we can fairly test this out.

Show children the display window in WeDo (click on the little laptop icon in the top of the screen). We can control this using any of the red blocks with the laptop icon in. *Can you work out what each one does?*

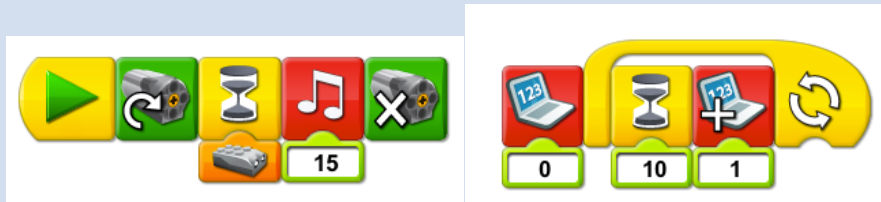


Talk children through the thinking process of making a timer: we need to set the display to zero, then wait for 1 second, then add one to the display, then wait a 1 second... *How could we create that in code?*

Activity

Children begin to explore creating the code, use mini-plenaries to share successes and explain why certain blocks are useful etc.

After children have explored how to solve that problem, show them some suggested code. Get children to add it to the spinner controls if they haven't already done so.



	<p><u>Plenary</u></p> <p><i>How could you add some other text to the display window, such as telling the user how to use the spinner? Could you change the background to the window?</i></p>		
To conduct a fair test using an on-screen timer	<p><u>Main input</u></p> <p>Ask chn to review <i>what they understand by a 'fair test'</i>. Tell the chn that we are going to use our spinners to carry out a fair test to see how long the top will spin for on different surfaces. Ask the chn to orally explain how this can be carried out as a fair test and use this to plan the experiment that the chn do as a class. Ask chn to complete planning sheet briefly.</p> <p><u>Activity</u></p> <p>Gather together a range of materials for the top to spin on and get children to conduct a fair test to see which allows the top to spin for the longest. Use the code and spinner created from the previous week to generate an on-screen timer for when the top is released. Chn to record findings in a table.</p> <p><u>Plenary</u></p> <p>Chn write the conclusion for their findings and explain how they used their code to help find the answer.</p>	Children can conduct a fair test using an on-screen timer.	Should be cross-curricular with science – carrying out a fair test.

Subject: Computing

Year Group: 4

Unit: Image & Sound (IT4a)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
<p>To understand how to use a camera effectively to frame and capture video.</p> <p>To understand that video can be improved with editing.</p>	<p><u>Main input</u></p> <p>Find some home video off YouTube (without any editing between shots) and then a Hollywood film trailer. Play them to children and ask what the difference is. <i>Was one more enjoyable than the other? Why?</i> Draw out that it was the editing that improved the video: joining clips together, adding sound effects and music, adding titles etc. Explain that we are going to be making a video project this half term, developing our editing skills to improve the outcome.</p> <p>However, in order to have some video to edit, we've got to capture it on a camera first! Show children the iPod touches and how to select video recording within the camera app. Which way round is your TV at home: tall or wide? Show children the correct way round to film video. Also talk to children about the difference between long shots, medium shots, close ups and extreme close-ups. <i>What is the effect of each?</i></p> <p><u>Activity</u></p> <p>Get children working in small groups to film some video using the different types of</p>	<p>Children can explain how editing improves video. Children can use a camera effectively to frame and capture video.</p>	

	<p>shots. Ask them to evaluate the difference in effect and self-assess whether they framed and captured video effectively.</p> <p><u>Plenary</u> Share back some children's learning with the whole class. <i>What sorts of shots were being used? Was the camera held the correct way round? How could the video have been improved further?</i></p>		
To use storyboarding and scripts to plan a video.	<p><u>Main input</u> Explain to children their brief for the video (e.g. retelling a short narrative or making an advert – you decide!). Are we just going to go out there and film? Or do we need a plan? Talk about two different ways that film-makers plan their work: scripts and storyboards. Scripts tell the actors what to say and do and storyboards show shot-by-shot what it will look like on the screen. Model how to create both of these.</p> <p><u>Activity</u> Give children time to create a short script for their video and the start to storyboard what some of the shots might be. Storyboarding can be very time-consuming so ensure that children's ideas are manageable and short. Perhaps different groups could re-tell different consecutive scenes of a story?</p> <p><u>Plenary</u> Get children to 'pitch' their ideas to the rest of the class, by explaining in a couple of sentences what their idea is about and what some of the key shots are going to be. Feedback two things that were good about each group's ideas and what one improvement could be.</p>	Children can create a short script and storyboard for their video.	Tie in the content/ideas for the video project with the Creative Curriculum topic.
To capture video successfully.	<p><u>Main input</u> Before children go off in groups to film their footage, assign children different roles with their groups, such as camera operator, director, actors etc. Who is going to make sure all of the scenes have been filmed? Who will decide the camera angles?</p>	Children can capture video for their project successfully.	

	<p>Get children to check through their scripts and storyboards and think what they will film first. Model taking good film footage, reinforcing the need to keep fairly close but not too close etc – draw out steps to success with the children for ‘What Makes Good (WMG) video footage’</p> <p><u>Activities</u></p> <p>Children to work in groups and film the different scenes to their video. Support children in using the cameras properly and staying on task.</p> <p><u>Plenary</u></p> <p>When children return, get them to watch the ‘rushes’ (unedited footage). <i>Which shots were useful? What needs to be edited out or edited together?</i> Get children to draw out how to achieve the WMG video footage using editing.</p>		
To import video into iMovie and add clips to timeline.	<p><u>Main input</u></p> <p>Explain that today we will be using iMovie to do a simple edit of our video. Model opening iMovie to children and then explain that all of the video footage we import needs to live in an ‘event’. Model the process: On the left panel in iMovie, under ‘iMovie Library’, is where the different ‘events’ live. Click File > New Event to create a new one, and then give it a name to do with the project. With this event selected, there will be a big ‘Import Media’ button on the bottom right panel. Click this and then plug the iPod Touch in using the USB cable. It will appear as one of the devices on the left. Select the video clips you want to import (hold cmd to select several) then click ‘Import Selected’. You will now be able to preview all of your clips. Either put your mouse cursor over a start point and press space bar, or click where you want to play from and then click the play icon in the preview window.</p> <p>To create a new movie project, click ‘Create’ at the top of the window and then ‘Movie’. Select ‘Blank’ from the various different themes and then give it a name and save it in the event created earlier. To add movie clips to your timeline (along</p>	Children can import video into iMovie and then assemble clips together on a timeline.	

	<p>the bottom of the screen), use the mouse pointer to preview the clips from top left panel. Click and drag to select the portion of video you want. Then click the '+' button to add it to the timeline.</p> <p><u>Activity</u></p> <p>Get children to assemble together all the different clips so that their video makes basic sense. Remind children to keep on playing back their video as they edit it to check that it is how they are expecting.</p> <p><u>Plenary</u></p> <p>Take a more detailed look at a couple of children's edited work. <i>Does it make sense? What is working well? How could it be improved?</i> Model for children ways that the editing could improve the video at this point in the process.</p>		
To fine-tune edits, add titles, transitions and sound effect.	<p><u>Main input</u></p> <p>Using an example of some basically assembled video, model how you can trim video clips to make the edit more effective (such as cutting off unwanted speech etc.). To do this, put the mouse cursor at the end or beginning of a clip and then drag. Show children how they could also add in titles at the beginning, credits at the end, more interesting transitions between clips and some sound effects. To do this, look at the options in the 'Content Library' box on the bottom left of the window. Each of the different elements can be dragged on top of the clips in the timeline. Double click to edit text of titles. <i>Is the result more effective?</i></p> <p><u>Activity</u></p> <p>Give children time to add titles, transitions, more precise edits and sound effects. Keep encouraging children to check and refine each time they make a change.</p> <p><u>Plenary</u></p> <p>Use mini-plenaries, as necessary, where one group's video is played to the whole class and then suggestions are made about improvements that could be made.</p>	Children can fine-tune edits, add titles, transitions and sound effects.	

<p>To export and evaluate finished video project.</p>	<p><u>Main input</u> Explain that today we are going to finalise our projects and then evaluate the finished project. Model for children how to export their final project: click 'Share' then 'File'. Change the size to 'Large' and then save it onto the server so other people can access it.</p> <p><u>Activity</u> Children to export their video project and save it onto the server.</p> <p><u>Plenary</u> Once all children have exported their video projects, view all the video projects as a class. Ask children to complete a self-assessment of their own videos against success criteria written for good footage and editing in an earlier lesson: <i>did it make sense? Were titles used effectively? Were the edits good?</i> Etc. Ask children to offer feedback on videos to other children.</p>	<p>Children can export and evaluate a finished video project.</p>	
---	---	---	--

Subject: Computing

Year Group: 4

Unit: Internet (IT4b)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
<p>To generate useful search criteria to find the answer to a question.</p> <p>To read the description of a website to find out if it is relevant.</p>	<p><u>Main input</u></p> <p>Ask children the question: <i>Who can put information on the Internet?</i> Explain that anyone can put information on the Internet and so it cannot automatically be trusted. We have to always be thinking, “Can I trust this? Is this relevant?” when using the Internet. <i>How many pages do you think there are on the Internet?</i> There were approximately 2 billion at the start of 2014. This is a lot of information, so we have to use a search engine to help us look through them all. But in order to get to the best results, we need to be really smart in the keywords that we use.</p> <p>Model for children searching to answer a question by just typing in one search term into Google. How many results do we get? Then model identifying and entering multiple keywords and showing how the results are better because we have fewer results and explain why this is better. <i>What would happen if we just typed in the question into Google?</i> Show that often lots of discussion forums come up, with people asking the same questions and anyone posting a response – <i>why are these potentially unhelpful?</i></p> <p>From the results that come up, which site are we going to choose? Explain to children about things like sponsored links, which may not be relevant at all. Model</p>	<p>Children can generate appropriate keywords and select a website from descriptions given by a search engine.</p>	<p>Link to Creative Curriculum topic with the questions that you ask and search for.</p>

	<p>the thinking process, considering whether the result is a video, whether the description given by Google seems to be appropriate.</p> <p><u>Activity</u> Give children a list of questions to find out answers to and ask them to write down the keywords they will enter into Google. Were the results useful? Which website did you choose from the results and why?</p> <p><u>Plenary</u> Ask children share back anything they found helpful when searching – <i>which websites did you use? Why do you think that website was helpful? What features of the site made them easy to use?</i></p>		
To use “Advanced Search” features.	<p><u>Main input</u> <i>Can we only search for web pages using a search engine?</i> Explain that we can also search for videos and images too. Model for children how to use the ‘Images’ and ‘Videos’ search filters on Google. Then show children the advanced ‘Search Tools’, which allow you to search for particular types of images or videos.</p> <p>There are also ways that you can enter text into Google that help with search. Model putting quotes around the text in a search box, so that Google searches for the string of text, rather than as keywords. <i>How might this be useful?</i> Then model how you can put a minus sign before a word so that Google excludes that from a search. This is useful if results come up that you are not interested in.</p> <p><u>Activity</u> Give children a list of specific type of items to search for on the Internet, e.g. a black and white image about a given topic, a webpage with a particular string of text on it. Get children to write down the web pages that they have found.</p> <p><u>Plenary</u> Children to share back which advanced search tool they found most helpful.</p>	Children can use advanced search features on a search engine.	

<p>To skim and scan websites to find relevant information.</p>	<p>So far we have learnt how to use appropriate keywords and advanced tools when searching to answer a question. But how do find the information we want on a page? Do we sit and read the whole page in detail? Teach children that they need to use their skimming and scanning skills to find the information. Model bringing up a more text-heavy web page and trying to find a particular piece of information on it by looking at subheadings and scanning for keywords.</p> <p>Explain that a computer can also help with scanning a page for particular key words. If you click Edit > Find > Find... in the menu bar, it will allow you to search for text on a page. This can quickly be brought up using cmd+F.</p> <p>Give children a set of webpages and some questions to answer from them, using their skim and scan skills, plus the use of 'Find' on the page.</p>	<p>Children can use skim and scan techniques to find relevant information on a webpage.</p>	<p>Relate subject of web pages to Creative Curriculum</p>
<p>To consider whether the information I have found is most likely to be correct/reliable</p>	<p><u>Main input</u></p> <p>Once we have found some information on the Internet, <i>how do you think we can know if the information is correct or reliable?</i> Show children a reliable/trustworthy website (such as BBC) and a really obscure, homemade looking website. <i>Which one do you think might have the correct answer?</i> Talk about the name of the site (have you heard of the BBC?), how 'professional' it looks and whether it clearly says who wrote the information. Compare this to the other website. <i>How else could you check some information?</i> Talk about finding the information on multiple websites – if it's the same everywhere, it's more likely to be true. As a class, come up with a success criteria for judging the reliability of a website and its content.</p> <p><u>Main input</u></p> <p>Give children a topic to search on and ask children to find one website they consider reliable and one they were not sure was reliable. Get children to take a screen-shot of these sites and then create a document which points on which features suggest whether the site is reliable or not.</p>	<p>Children can consider the reliability of content on a website.</p>	

	<p><u>Plenary</u></p> <p>Tell the chn that next week, we will be making a webpage/wiki which provides a list of websites someone could use to find out about your topic. <i>Thinking about reliability and quality of website, how can we assess if our list of websites are useful or not?</i> Use to generate success criteria for the task next week.</p>		
<p>To be able to use a Wiki to collate useful web links.</p>	<p><u>Main input</u></p> <p>Have you heard of the website 'Wikipedia'? The word 'wiki' is used to describe a website that is made by community of users who can all edit and create content. We are going to make our own wiki as a class in order to share the best sites we have found about our topic.</p> <p>To make the wiki, type http://mac-server.local into the web browser. As a teacher, click on 'Wikis' then the padlock in the top right of the screen. Log in with your normal USO login. Click the '+' and then 'New Wiki...' Give it a name (your class) and a description. Where it says 'Permissions, click the 'No access' drop-down box next to 'All logged in users' and change it to 'Read & Write'. Click 'Next' and then choose a colour scheme. Click 'Create' to finish. You can now edit pages by clicking on the pencil icon in the top right or add a new page by clicking the '+' icon and adding a new page. When editing a page, you can add a link to a website by clicking on the arrow icon, then 'Enter URL'. Type in the complete web address (copy and paste it from the address bar). Save when done.</p> <p>Model for children how to log in and create a page for themselves on the Wiki. Show how to search for pages on a given topic and then copy the URL and add it to the Wiki page, creating a hyperlink.</p> <p><u>Activity</u></p> <p>Give children time to log into the server, using their USO password, to create a page and then try editing text and adding a URL.</p>	<p>Children can add URLs to a Wiki page.</p>	

	<p>Extension/mini-plenary: Model to children how to create an image hyperlink and allow chn time to add this.</p> <p><u>Plenary</u> Look back over the pages that children have made. <i>Have you added in a working URL? What other things could you add to your page?</i></p>		
<p>To make a wiki page of useful links on a given topic.</p>	<p><u>Main input</u> Briefly review the skills taught so far and set task.</p> <p><u>Activity</u> Give children their topic to research and then ask them to collate the websites they have found a Wiki page. Use success criteria to review prior learning and set expectations for the task.</p> <p><u>Plenary</u> Children peer assess the links provided by their peers against the success criteria.</p>	<p>Children can make a wiki page with links to their given topic.</p>	<p>Link content to Creative Curriculum topic.</p>

Subject: Computing

Year Group: 4

Unit: Productivity (IT4a)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To know that spreadsheets are organised into cells with a cell reference	<p><u>Main input</u></p> <p>Explain that this half term, children will be learning how to use a spreadsheet (Numbers/Excel). Ask chn what they remember from using this software before – <i>What do spreadsheets do? Why are they better than humans doing maths?</i> This can be used to calculate numbers and amounts in different ways. Show children a screenshot of Numbers, with the cell references visible. Explain that each cell has got a unique reference, with the columns called by letters and the rows by numbers. We can use these references when we do calculations between them.</p> <p>Get children to draw a grid on small whiteboards with letters along the top and numbers down the side. Children to write in the cell references for each cell.</p> <p><u>Activity</u></p> <p>Teach children the game ‘Battleships’ (see resources folder on server for an example PDF to use). Model to children how to set up their own battleships and then call out cell references to their partner and see if they can hit any of the battleships.</p>	Children can identify the cell references for cells in a spreadsheet.	

	<p><u>Plenary</u></p> <p>Set up a spreadsheet with different coloured cells. Get children to identify the cell references for the different coloured cells.</p>		
<p>To be able to use the '=' sign to write simple addition and subtraction formulas</p>	<p><u>Main input</u></p> <p>In a spreadsheet, we can use formulas to make the spreadsheet do calculations for us. Model typing in '=A1+B2' into a cell (making sure that there are numbers in those cells). <i>What do you think will happen?</i> Explain that we put an equals sign in first and then the cells we want to add together. Model an example with a subtraction as well.</p> <p>Recap with children about how the tables in Numbers can be resized to only have the number of rows and columns required (by clicking and dragging on the circles on the top and bottom right and bottom left) and model this. Also model renaming and moving tables as well as explaining about using header columns and rows where needed.</p> <p><u>Activity</u></p> <p>Give children a set of data where they need to add up cells in two columns and then subtract that answer from another column. Ask children to type in the data and then use formulas to do the calculations. Get children save their files onto the server.</p> <p><u>Plenary</u></p> <p>Show children how you can just click on a cell you want to have as part of your formula, after typing in '='. However, it's important to understand cell references first.</p>	<p>Children can write simple formulas to add and subtract cells.</p>	<p>Tie in the type of data with the Creative Curriculum topic.</p>
<p>To write 'SUM' formulas</p>	<p><u>Main input</u></p> <p>Recap cell references and simple addition/subtraction formulas with children. It might be helpful to do this using whiteboards and pens, rather than at a computer.</p>	<p>Children can use =SUM to calculate a total.</p>	

	<p>Today we are going to be learning about a new formula called 'SUM', which calculates the total of a set of cells. <i>How could we write a formula to add up a set of different cells?</i> Ask children to write a formula using simple addition, e.g. '=A1+A2+A3+A4'. Explain that we could do that more quickly by using the SUM formula. Model an example, such as '=SUM(A2:A6)'. In this, the spreadsheet will add up all the cells between and including A2 and A6.</p> <p><u>Activity</u></p> <p>Children to open up the spreadsheets from the previous week and practice using the =SUM to work out the totals of all the columns. <i>How could you label it or change the formatting so it is obvious that it is a total?</i> Talk to children about using footer rows in Numbers.</p> <p><u>Plenary</u></p> <p>Show children that if you select all of the cells you want to add up, a set of different formulas appear at the bottom of the window. Click and drag the one saying 'SUM' into the box where you want the total to be.</p>		
To use * and / to write multiplication and division formula	<p><u>Main input</u></p> <p>Recap how we have learnt to use the + and – operators in a formula. How do you think we could multiply or divide using a formula? What keyboard symbols would we use? Explain that the '*' symbol is used for multiplying and '/' for dividing. Model some examples, e.g. '=A2*B2' or '=B5/10'.</p> <p><u>Activities</u></p> <p>Give children some data that involves multiplication, such as working out how much 5 apples at 20p each would cost, and how much that would cost per person in a household of 4 people. Provide a pre-written spreadsheet with only the formulae missing.</p>	Children can write formulas involving multiplication and division.	Link data into Creative Curriculum topic.

Plenary

Show children a spreadsheet with some mistakes in it, such as the totals seeming to not add up properly. *How could we debug it?* Model that if you click on a cell with a formula in, it then highlights all the cells that are being referred to and so you can see where any mistakes might be.

To use a spreadsheet to solve a problem.

Main input

Explain today's task, that we are going to work out how much it would cost for a family's food for a week during WWII. Give children some example data of what food would be used during an average week and the cost of each item. Model an example together to decide what headings we would use in the spreadsheet and what formulas we would need to work things out. E.g.:

Example WWII Family Week			
Food	Cost per item	Used per week	Cost per week
Sugar	£0.20	3	£0.60
Butter	£0.59	2	£1.18
Tea	£0.89	1	£0.89
TOTAL			£2.67

Activity

Children to create their own spreadsheets using the data given to them about quantities and costs for each food. Support children in using the correct formulas to calculate the cost per week and total cost.

Plenary

Give children some questions from the spreadsheets they have created, such as: how would they have spent on butter in a week? Did they spend more on tea or sugar in a week? What was the total cost for a week?

Children can use formulas to calculate costs for food.

Closely linked to WWII topic.

Children could spend a history lesson looking at the price of different food items during WWII.

To model different options using a spreadsheet.

Main input

Can anyone tell me how rationing worked during WWII? Explain to children how each family would have a book of tickets for rationed items (i.e. tea, butter etc.) and they could only buy a certain number of those items per week. Today we are going to use a spreadsheet to work out if two different menus for a week could be afforded with rationing.

Model to children how to create a spreadsheet with the following sorts of headings:

Menu 1			
Food	Ration tickets p/w	Used per week	Tickets left
Bag of sugar	2	3	-1
Pad of butter	2	2	0
Packet of tea	1	2	-1
TOTAL		7	-2

Menu 2			
Food	Ration tickets p/w	Used per week	Tickets left
Bag of sugar	2	2	0
Pad of butter	2	2	0
Packet of tea	1	1	0
TOTAL		5	0

The column showing how many ration tickets would be left is the difference between the 2nd and 3rd columns.

Give children the weekly rations for various types of food and then simple recipes for different meals and how much of each restricted food would be in each (e.g. how many eggs in omelette etc). Because we can enter in the figures into our spreadsheet, we figure out whether a week's menu would use up all the rations or not.

Main Activity

Get children to create two different spreadsheets for two different menu options for a week. Children to then work out how many ration tickets are used in each menu and whether they would have enough for that week or not. Support children in making the formulas correctly for their tables, as well as finding the answer to the question.

Children can use formulas to calculate how many ration tickets are used.

Linked to WWII topic. Children could use a history lesson to look at rationing for different food types.

	<u>Plenary</u> Which menu was affordable in terms of ration tickets? Could we alter the other menu so that it would work?		
--	--	--	--

Subject: Computing

Year Group: 5

Unit: Control – (CS5a)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To build a more complex LEGO model	<u>Main input</u> Recap with children the LEGO WeDo equipment, how there are various sensors (motor, tilt sensor and distance sensor) for different models that can be controlled using the LEGO WeDo software. This half term we will be making a more complex model and then programming it using Scratch as well as the WeDo software. The model children will be building is the crane. The instructions can be found on the WeDo software on the Macs by clicking on the yellow brick in the top left, then the LEGO head, then clicking on the models on the left. Choose the crane from the different options. Show children the picture of the completed model and briefly explain how the model works (i.e. the motor turns the pulley wheel and belt, which turns an axle, which rotates the wheel with the string, which lowers or lifts the hook). <u>Activity</u> To build the models, children will work in groups of threes, using the main WeDo	Children can construct the crane model following instructions.	

	<p>kit plus an additional resources kit. (Could make instructions into iBooks/sheets to make in the classroom, rather than using computers?) Pieces will be required from both kits in order to build the model, so don't worry about them being mixed up between the boxes <u>as long as the boxes are kept in numbered pairs</u> (e.g. 1 + R1 etc.).</p>		
To build a more complex LEGO model	<p><u>Activity</u></p> <p>Continue building the crane model started in the previous lesson. In order to allow all classes in the year group to build, perhaps let one class build for two lessons one week and then other class build for two lessons the following week. The model will have to be broken down before the next class uses it, but keep the crane built after the last class have finished. Support children in accurately following the instructions in order to build models properly. Share back completed models, checking quality control.</p> <p><u>Plenary</u></p> <p><i>What do you think this model can do? What sort of code blocks do you think we would need?</i></p>	Children can complete construction of crane model following instructions.	
To program motor and tilt sensor in WeDo software	<p><u>Main input</u></p> <p>With the completed crane models, explain to children that we are going to use the WeDo software to program it so that when the wheel is turned, the crane goes up or down. <i>Who can explain how the motor would make the crane hook go up or down? How could we program the WeDo software so that the hook goes up for 1 second when the play button is pressed? How about making the crane hook go down?</i></p> <p><u>Activity</u></p> <p>Get children to explore ideas and then share this code:</p>	Children can program the crane using WeDo software	



Mini-plenary

How might the control wheel with the tilt sensor work? Explain that it can be tilted forward and back, and then the elastic band brings it back to the middle.

How could we instruct it to wait until the sensor it tilted one way to start the motor and tilt the other way to stop? Click on the sensor icon to change which direction it is looking for.



The problem with this code is that it doesn't loop so will stop once the motor has stopped.

Activity

Chn to explore: *Where would we put the loop?* *How could we make it so that the control wheel makes the crane hook go up as well as down?*



Plenary

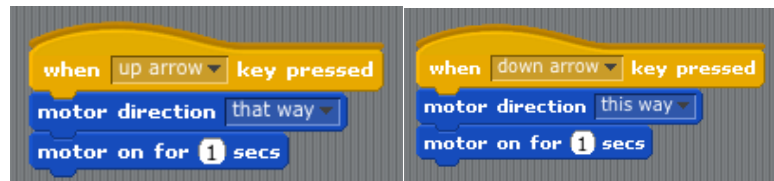
Why do we need to start the code with a key command? (so both pieces of code start at the same time)

To use Scratch to make the crane hook move

Main input

Explain to children that we can also use Scratch program to control the LEGO WeDo model. *What do you remember from using Scratch previously? In what ways is it similar to the WeDo software?* Draw out some of the similarities, such as starting and stopping code (the green flag and red stop button in Scratch) and dragging blocks of code together to create the instructions. Scratch is capable of doing much more, which can make it more complex to use.

Today we will be learning how to control the motor using the keyboard. The code can be assigned to a sprite or to the stage, but it doesn't matter so much. The motor blocks are under 'Motion' and may need to be turned on by clicking 'Edit > Show Motor Blocks'. *What block would we use to wait for a particular key to be pressed? How could we add controls to make the crane hook move up and down?* Share ideas and then model this code:



Activity

- *Can you change it so that the hook moves for a longer period of time?*
- *Can you make the hook move faster or slower?*
- *Can you add a sound effect as the hook moves*
- *Can you make the hook move continuously when you press one key and then stop when you press another one?*

Plenary

Share back children's solutions to different code challenges.

Children can use Scratch to make the crane hook move.


To use Scratch to make the hook move in response to the tilt sensor

Main input

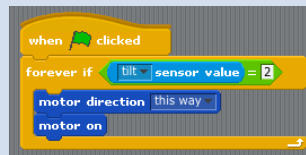
Ask children to explain to their partner how the control wheel and tilt sensor worked with the WeDo software to control the crane hook (e.g. “when it tilts left, the motor turns to make the hook go up and when it tilts right, the motor turns to make the hook go down”). Explain that today we are going to use Scratch to create the instructions so that the control wheel makes the hook go up and down.

Show children the ‘Sensing’ set of control blocks in Scratch. Which one might be for the tilt sensor? Model for children ticking the box next to the block ‘sensor value’, making sure the drop down menu has tilt selected. This will make a sensor output box appear on the stage so you can see what the different outputs for the sensor are. Left and right should come up as 2 and 4.



We now need to write some code that makes the motor move one way if the tilt sensor has value 2 and move the other way if the tilt sensor has value 4. In Scratch we use blocks called ‘Operators’ in order to state mathematical operations. These are green, and we need to use the one .

Model for children how to put together a code block which will move the hook if the control wheel is tilted in one direction.





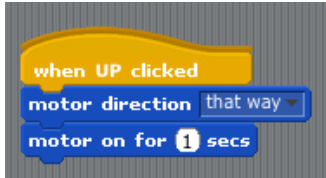
Activity

Give children time to build the code and check it works with their crane.

Plenary

Can you explain to your partner how this works? Can you make two more code

Children can make the hook move in Scratch in response to the tilt sensor.

	blocks, one that moves the hook if the wheel is tilted the other way and another which stops the motor when it is in the centre?		
To create an interface using Scratch to control the crane	<p><u>Main input</u></p> <p>Explain to children that they are going to build a visual interface today that can control the crane. The first job is to create the different sprites that will work as buttons. Click the 'paint new sprite' button  and model how to design a button for making the crane go up (such as a box with text saying 'UP' on it). To make it easier to program, rename the sprite above where all the scripts are.</p>  <p>We then have to program that sprite so that once it is clicked, it makes the crane go up. Which blocks would we use? Ask children to come up with suggestions for how the code would work. Then share this code with children:</p>  <p><u>Activity</u></p> <p>Set children the task of creating a visual interface that can control how the crane works. Share a success criteria with children about what they need to do: create sprites for up and down; add scripts to each sprite to control the motor; arrange them attractively on the stage.</p> <p>Extension challenges:</p> <ul style="list-style-type: none"> • Can you make the crane hook move continuously when the buttons are clicked and then add a 'stop' button? 	Children can create an interface in Scratch to control the crane	

	<ul style="list-style-type: none"> Can you add controls to alter the speed of the crane? <p><u>Plenary</u> Share back children's finished interfaces. <i>Does it need debugging? How could it be made more efficient? Have we all solved the problem in the same way?</i></p>		
--	--	--	--

Subject: Computing

Year Group: 5

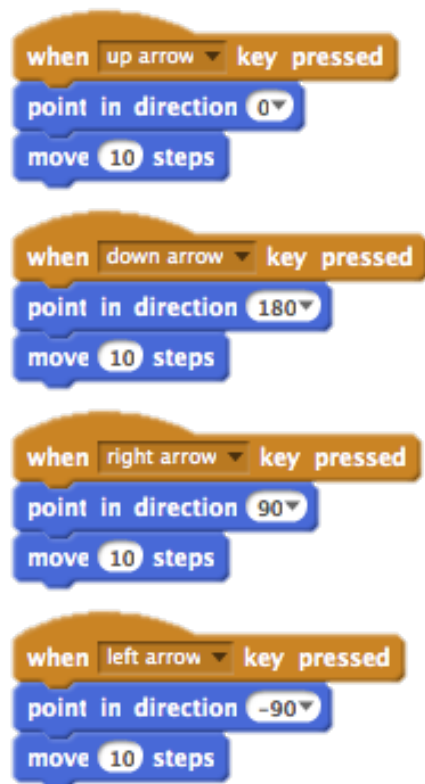
Unit: Visual coding (CS5b)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To understand what a game needs to be successful.	<p><u>Main input</u> Explain to the chn that they will be using Scratch to make a maze game later in the term – today, we are going to think about what makes a good maze game. Open 2DIY on purple mash and model making a good game – it needs to be possible to win but not too easy! <i>Draw out steps to success for a good maze game.</i> Model some of the extra features, e.g. changing the design of the prizes, monsters etc.</p> <p><u>Activities</u> Children use 2DIY to make a successful game.</p> <p><u>Plenary</u> Have a look at the Maze Starter project on Scratch (this is ultimately what the children will be making). http://scratch.mit.edu/projects/10128431/ Discuss the project (similarities and differences) and 'see inside' at the code – <i>what different blocks of code are being used? What is happening with the two sprites?</i> Record what they have discussed in process diaries.</p>	Children can identify and create a simple maze game.	n/a

To program a sprite so that it moves in response to arrow keys.

Main input

Model how to choose the action that happens in response to this input and model adding them together – introduce the idea of turns – it needs to turn so that the sprite 'steps' forward. (Note: Steps are necessary for the code later on, not x and y co-ordinates) Show how this can be used to set the keyboard up to control the sprite, e.g.:




Activity

Children to code their sprite to move in response to all the arrow keys.

Children can program a sprite to respond to keyboard input.

Maths – degrees of turns.

	<p>Extension: <i>Can you make the sprite 'jump' up and back down when you press the space bar and using the 'wait' block in the control section?</i></p> <p><u>Plenary</u> Chn record in their process diary for the unit what they have done today.</p>		
To design a simple maze using the stage in in Scratch.	<p><u>Main input</u> Look at the starter project http://scratch.mit.edu/projects/10128431/ again and ask the children – <i>how is the blue maze created?</i> Draw out that it is the 'stage' which the sprite moves around on. Model how to edit the stage using the tabs and the drawing tools. . Review what we looked at in the first lesson – it shouldn't be too hard, it shouldn't be impossible, but it also shouldn't be too easy.</p> <p><u>Activity</u> Children design the stage for their own game. Children then need to save the project to use next week.</p> <p>Extension – <i>where do you want the sprite to start?</i> Consider the challenge of different starting positions.</p> <p><u>Plenary</u> Model how to take a screenshot of the stage – cmd+shift+4, use the tool to select. Copy the screenshot from the desktop into the process diary and comment.</p>	Children create a new stage for their maze game.	n/a
To program an action to occur in response to a stimulus.	<p><u>Main input</u> Introduce the 'sense' blocks of code in scratch and discuss some examples. Ask the children – <i>what do we want to happen when it senses the blue background of the maze walls?</i> How do you think we could construct this code? Children discuss and teacher then gradually draw out the steps from the children until the code looks like this (explain using the 'forever' block and why it is used, as well as why it needs</p>	Children can use the sensing blocks to create a collision effect.	n/a

to be attached to the 'when flag clicked' block):



Activity

Load saved project from last week. Children must now program their sprite to move with the keyboard and add the sensing/collision code to their game.

Extn: Can you add a piece of gold to your stage? Can you program a collision code that will say 'yay' when it gets to the gold?

Plenary

Children screenshot their code for their process diary and explain the different elements.


To create a simple maze game.

Main input

Look at <http://scratch.mit.edu/projects/10128431/> again and ask how the goal is set up – it is a second sprite that has a code telling it to do something when it senses the sprite called 'ball'. Tell the chn that today they will be finishing off their game, by applying what they have learnt to make and code a second 'goal' sprite. Model how to create a second sprite and how to edit and change the names of the current sprite. (Note: Do not model code – chn will be applying what they have learnt in previous weeks to construct the code independently.)

Children can create their own game.

n/a

	<p>Set challenges for the lesson and let children use what they have learnt to achieve these. Use mini-plenaries to address common difficulties as they arise:</p> <ol style="list-style-type: none"> 1) Ensure that your sprite is keyboard controlled and can not go over the 'walls' of your maze. 2) Create a 'goal' that says 'you win' in a speech bubble when it touches your sprite. 3) Add a third sprite – a monster! What will your first sprite do when it collides with the monster? 4) <i>Can you get the monster to move in a random way?</i> (extension task only) <p>sample code:</p>  <p><u>Activity</u> Children finish their own game, completing above challenges.</p> <p><u>Plenary</u> Children save their project and write in their process diary.</p>		
To evaluate my game and debug where necessary.	<p><u>Main input</u> Review the steps to creating a successful game from the first week. Tell the children that they will be evaluating this today on their own game and on other's games. Choose one game from the class and model playing it and asking the children for 2 stars and a wish – <i>is there something they could do to make it harder/more efficient/debug it?</i> Send children to computers to load their projects.</p> <p><u>Activity</u> Children play and peer assess code and game of their peers against SC.</p>	Children can evaluate both their code and the game in terms of effectiveness.	n/a

	<p>Children then have 15 minutes to act upon their feedback to make their games better.</p> <p><u>Plenary</u></p> <p>Children record what they did in their process diary – encourage children to explain ‘why’ they did this!</p> <p>Children print process diary for CC books.</p>		
--	--	--	--

Subject: Computing

Year Group: 5

Unit: Internet (DL5a)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To understand that information can be organised and presented in an App	<p><u>Main input</u></p> <p>Define for children what an ‘App’ is: a self-contained program or piece of software designed to fulfil a particular purpose. Explain that AppShed allows you to make simple web apps that can be displayed on a mobile device (iPod touch/smart phone etc.). What apps do you know about?</p> <p>Model for children how to visit http://appshed.com and the scroll down to where it says ‘View the App Gallery’. Here are a selection of apps which have been created using AppShed. Show children how they can also use iPod touches to view these apps on a smaller mobile device screen. How do they look different?</p> <p><u>Activity</u></p> <p>Children to look at apps through the App Gallery to see what they can find. <i>What sorts of apps have been created? What are the capabilities of these apps? Which</i></p>	Children can identify features of a ‘good’ AppShed mobile app	

	<p><i>are the successful apps and which ones don't work so well?</i> Children to keep a record of their findings.</p> <p><u>Plenary</u> Together as a class, devise a success criteria for a good AppShed app.</p>		
<p>To insert text and images onto a page.</p>	<p><i>Prior to lesson, teacher to have set up accounts for the children on AppShed. We recommend setting up generic log ins, e.g. pupil1, pupil2 etc so that this is not an annual task!</i></p> <p><u>Main input</u> Explain that today children will be introduced to the basics of building an App in AppShed. Model to children how to log in and then change the device skin to whatever they choose. Model how to click on the red '+' to create an App, and then give it a name, a description, a category and an icon. Then show how to click on 'Screen title' then 'edit' to change the text. In the right-hand panel, go through the different options for 'Standard Screen Items' to add text, images and styled text. Go through each of these and model how they work, thinking aloud about the purpose of each one and thinking aloud about making selections of fonts for certain purposes etc.</p>	<p>Children can create an App and add text and images onto a page</p>	

	<p><u>Activity</u> Give children time to create an app and then add some images and text to a single page. Support children with logging in and using the interface.</p> <p><u>Plenary</u> Demonstrate to children how to publish their app (click 'Publish' at the top) and then preview it (click 'Share' then 'Preview'). <i>Did it turn out how you expected? Is there anything you would like to change?</i> Link to success criteria written last week.</p>		
To organise content into relevant tabs and insert hyperlinks.	<p><u>Main input</u> Recap with children how to log into AppShed and retrieve the app they were working on. Explain that today they will be organising pages into tabs and adding hyperlinks to external web pages.</p> <p>Model children how to add an additional tab: at the bottom of the app preview, there will be one 'home' tab and next to it, it says 'New Tab'. Click on this to add another blank tab. The tabs all need to be named appropriately and their icon changed accordingly. To do this, click on the tab and then click 'edit'. Here you can change the name and click 'Browse' to look through a range of different images for your tabs.</p> <p>Show children again how to publish and preview the app to see how the tabs are working – think aloud when reflecting on the app, linking to success criteria written in the first week.</p> <p><u>Activity</u> Allow children time to add tabs for information.</p> <p><u>Mini-plenary</u> Model for children how they can also add links and image links. These will take you</p>	Children can create different tabs and links to new pages and external websites.	

	<p>to a new page within your app. After you have created the link, click on it in the app preview and then select 'Navigate'. It will take you to another page, which then needs to be filled with content.</p> <p>Links can also take the user to an external website. To do this, click on the link and click 'edit'. Then click on the 'Action' button at the top and click 'Change Action'. Choose 'Web' and then type in the full web address required.</p> <p><u>Activity</u> Give children time to experiment in making tabs, links to new pages and links to websites.</p> <p><u>Plenary</u> Peer assessment - <i>Does it look good if there are too many tabs? Have you made sure that the icons and text is altered for your tab? Are you tabs ordered effectively?</i></p>		
<p>To plan and design my own app. To gather the information I wish to display.</p>	<p><u>Main input</u> Explain that it is now time to plan and create your own app about a given topic. <i>What sort of information do you want to display? What would people want to find out? How could the information be displayed in an attractive way?</i></p> <p><u>Activity</u> Give children a planning format so that they can design the different tabs for their app and what goes on each one. Make sure children plan in sufficient detail about the text and sorts of images they want to use. When plans are complete, ask children to start gathering any information and resources they might need, such as web addresses, text, photos etc.</p> <p><u>Plenary</u> Ask children to present back their plans for their apps to the rest of the class. Children peer assess - <i>What improvements could be made?</i></p>	<p>Children can plan and design an app about a given topic.</p> <p>Children can gather the necessary resources they need for that app.</p>	<p>Tie in app content to Creative Curriculum topic.</p>

<p>To create an app to display information about a given topic</p>	<p><u>Main input</u> Revise with children how to log into AppShed, open an existing app and add tabs, content to tabs and links (prior learning). Remind children about the importance of testing what they have done and then make improvements all the time.</p> <p><u>Activities</u> Using the plans from the previous week, get children to create their apps. Support children with problem-solving and fine-tuning. Encourage children to regularly publish and preview their apps. What could be better? What still needs to be done? Use mini-plenaries throughout to encourage this.</p> <p><u>Plenary</u> As an extended plenary, allow chn time to look at each other's apps in 'preview' mode. <i>Is there anything that someone else has done that you would like to add? Why do you like that? Why would this change improve your app?</i> Allow children time to add anything they have seen and wish to add – make sure children say "thank you" to the person who gave them their idea!</p>	<p>Children can use AppShed to create an app to display information.</p>	<p>Tie in app content to Creative Curriculum topic.</p>
<p>To test and improve my app</p>	<p><u>Main input</u> This lesson, children will be installing their Apps on iPod Touches, testing and evaluating them. Model for children how to log into AppShed, publish an app and then type the web address into an iPod Touch to open up the app. In Safari, tap on the 'share' button and then 'Add to Home Screen' to install the web app on the home screen.</p> <p><u>Activity</u> Children to use an iPod Touch to open up their own App from App Shed and install it onto the home screen. Pass around the different iPod touches around the class and get children to fill in a feedback form each time: what was good? What could be improved?</p>	<p>Children can give feedback on apps and then make improvement based on this</p>	

Once several different children have tried out the apps, pass the iPod Touch and evaluation form back to the maker and give children time to read their feedback. What sort of things needed improving? Model how to make improvements to an app and then publish it again.

Extended plenary

Children to make improvements to their apps based on feedback before re-publishing.

Subject: Computing

Year Group: 6

Unit: Image and Sound (IT6a)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
---------------------	------------	-------------------	------------------------

<p>To identify features of documentaries</p>	<p><u>Main input</u> Introduce new topic to pupils, we will be creating a documentaries using iMovie. Ask pupils if they know the style/features of a documentary. <i>How is it different to a movie?</i> Pupils discuss in talk partners and feedback. Create a list of key features through feedback.</p> <p>Watch short clips of documentaries on Usain Bolt. Talk partner what they noticed about the content of the documentary, the style, who was talking, what was shown e.g. interviews, home movies, clips. (Features might include: Interviews, cutaways, voiceovers, dramatic reconstructions, framing, sound, excerpts, montage, narration, behind the scenes, clips/photos.)</p> <p>Discuss the key features and importance/relevance to documentary. <i>Why has the director chosen to present it in such a way?</i></p> <p><u>Activity</u> Children work in mixed ability pairs/groups to analyse features within a given documentary. Children can be provided a checklist to tick off the features that were included and evaluate the success/relevance of the technique.</p> <p><u>Extended plenary</u> As a class watch the videos each group watched. Each group feedback the features they ticked off and their evaluation of the features.</p>	<p>Children can analyse a documentary to identify features used.</p> <p>Children can evaluate the use and relevance of particular features used.</p>	<p>Documentary can be linked to topic in English or Humanities.</p>
<p>To plan the structure of our documentary</p>	<p><u>Main input</u> Recap features from last lesson. <i>Which were most effective why? How can the poorer ones be improved? Which features would you like to include/explore in your documentary?</i> Pupils discuss and feedback.</p> <p>Model filling in the beginning of a story board of what you would like to include in a documentary e.g. first section – interviewer talking to camera about the interviewee’s most famous achievement. Next section – a photo/clip of the person</p>	<p>Children can choose an appropriate feature of documentaries relevant to content/scene.</p>	<p>Documentary can be linked to topic in English or Humanities.</p> <p>English links with storyboard and planning.</p>

	<p>in action e.g. playing a sport/singing. Model annotating each scene with relevant features, camera angles and props.</p> <p><u>Activity</u> Children to fill in their own storyboards to plan the sequence of their documentary, including cutaways, voiceovers etc.</p> <p><u>Plenary</u> Ask children to share some of their documentaries, checking if they have included most of the features the class generated together.</p>	Children can sequence documentary using a storyboard.	
To film interviews, cutaways and dramatic reconstructions, considering framing and sound, for a documentary.	<p><u>Main input</u> Explain to pupils that unlike a piece of writing, filming doesn't have to be sequential. If both scene 3 and 5 are in a particular setting then it is better to shoot similar scenes in one stretch.</p> <p>Ask pupils <i>what other aspects of filming will they need to take into consideration besides the documentary features?</i> Children discuss in pairs and feedback. Elicit from pupils they need to think about the framing, angle, light and sound of each shot when recording. Model filming an interview, cutaways and dramatic reconstructions. Using thinking aloud explain the angle/shot choice made to pupils. For the cutaway, explicitly model not recording any voiceovers. Explain to children this will be done post production.</p> <p><u>Activity</u> Pupils record scenes based on their storyboards.</p>	<p>Children can film scenes to include features of a documentary.</p> <p>Children can ensure appropriate framing, lighting and sound are taken into consideration for filming.</p>	Documentary can be linked to topic in English or Humanities.

	<u>Plenary</u> Chn orally explain what they need to do next week to complete the filming and explain why this will be beneficial.		
To film interviews, cutaways and dramatic reconstructions, considering framing and sound, for a documentary.	<u>Main input</u> Recap with pupils how many of the scenes they have filmed so far. Share a few good examples with class. Children analyse film for both documentary features and filming techniques. Briefly feedback and set children off to continue filming. <u>Activity</u> Chn to finish filming the elements needed for a documentary. <u>Plenary</u> Chn to check they have enough footage and assess if their footage is good, based on what they know about framing etc from previous lesson.	Children can film scenes to include features of a documentary. Children can ensure appropriate framing, lighting and sound are taken into consideration for filming.	Documentary can be linked to topic in English or Humanities.
To sequence video shots and refine using transitions	<u>Main input</u> <i>What worked well when filming last week? What will need improving?</i> Show a clip of filming that one of the groups created in the last session. As a class, peer assess. <i>What have they done well? What will need editing when put into iMovie?</i> Model using iMovie. Model the following: <ul style="list-style-type: none"> • Model importing video clips into iMovie from iPods. • Show them how to play a movie back to watch what they have got. • Model double clicking the movie to delete it or scrolling to watch a certain part. • Model how to edit the clip length and cut out parts that they do not want from their recordings. • Model how to alter transitions between scenes. 	Children can fine-tune their documentary through use of various editing skills.	Documentary can be linked to topic in English or Humanities.

	<p><u>Activity</u> Children add their videos to iMovie and begin to edit the lengths of clips and edit transitions.</p> <p><u>Plenary</u> Share some good learning from the lesson, where children have demonstrated the skills to edit the length of clips and add transitions. <i>What is good about their documentary so far? How does it meet the success criteria? How could they improve their work further?</i></p>		
To add post production effects to a documentary	<p><u>Main input</u> Explain to pupils they will be putting the finishing touches to their documentaries this lesson.</p> <p>Model using iMovie to add effects. Model the following:</p> <ul style="list-style-type: none"> • Model adding sound effects or music by browsing the content library. • Click on Window>>Record Voiceover to record over parts of the video. Play back video to show pupils this feature automatically turns the volume down for that part of the video. • Model adding titles and credits to film by clicking on titles in the content library. • Model exporting film. <p><u>Activity</u> Children add sounds, voiceovers and titles to their documentary.</p> <p><u>Plenary</u> Pupils export films and save on a shared file. Pupils can evaluate each other's documentaries in the following session. Look back at the list of features generated at start of unit. <i>How many of them and how well have these been included in the documentaries?</i></p>	Children can add sound effects, voiceovers to enhance their documentary.	Documentary can be linked to topic in English or Humanities.

Subject: Computing

Year Group: 6

Unit: Internet (IT6c)

Learning Objectives	Activities	Learning Outcomes	Cross-curricular links
To understand that information can be organised and presented in an App	<p><u>Main input</u></p> <p>Remind children what an 'App' is – a self-contained program or piece of software designed to fulfil a particular purpose. Explain that AppShed allows you to make simple web apps which can be displayed on a mobile device (iPod touch/smart phone etc.). <i>What apps do you know about?</i></p> <p><u>Activity</u></p> <p>Get children to do some research into websites and Apps to do with a given topic. Use the App Store in iTunes or the gallery in AppShed to view screenshots of different apps. <i>What sort of resources can you find? How is the information presented?</i> Children to keep a record of their findings.</p> <p><u>Plenary</u></p> <p>Explain that apps made on AppShed have some limitations, but are able to do certain things such as display photos, information, maps and web links. Go to the App Gallery on appshed.com using an iPod Touch and browse the different types of apps available. <i>What do you like? What sorts of things are possible?</i> Children share back their findings with the class.</p>	<p>Children can identify different apps and resources about a given topic.</p> <p>Children can articulate some of the features of AppShed mobile apps.</p>	Link into Creative Curriculum topic to give context for app.
To create simple pages of content, including tabs, links, images and text.	<p><u>Main input</u></p> <p>Explain that today children will be revising the basics of building an App in AppShed and then adding a gallery of images to use in an app.</p> <p>Model to children how to log in (see note in Yr5 Internet scheme for details of this) and then change the device skin to whatever they choose. Model how to click on the red '+' to create an App, and then give it a name, a description, a category and</p>	Children can create a multiple page App with text, images, links and text.	

	<p>an icon. Then show how to click on 'Screen title' then 'edit' to change the text. In the right-hand panel, go through the different options for 'Standard Screen Items' to add text, images, links and image links. Go through each of these and model how they work. Revise with children how to add further tabs by clicking on the 'New Tab' button at the bottom of the app preview screen.</p> <p><u>Activity</u> Give children time to practice these skills of adding some pages, tabs, text, images and links.</p> <p><u>Plenary</u> Demonstrate to children how to publish their app (click 'Publish' at the top) and then preview it (click 'Share' then 'Preview'). <i>Did it turn out how you expected? Is there anything you would like to change?</i></p>		
To add interactive features to an app.	<p><u>Main input</u> Recap with children how to log into AppShed and retrieve the app they were working on. Explain that today they will be adding a map to an app and a gallery. Model children to add a map by clicking on 'Map' under the tabs you can add. Here you need to change the name of the tab to something like 'Map' and then browse for an appropriate tab icon. Save it. You can then add an advanced screen item of a map point. Here you can enter the location of where you want your pin.</p> <p>Model for children how to add a new 'Gallery' tab. Enter a name for this tab and show how to change the icon for the tab. Click on 'New Photo' to add a range of different photos to a gallery, either from the AppShed selection of images or from one from the Internet. Show how to publish and preview the app to see how a gallery works.</p> <p><u>Activity</u> Allow children time to find some images from the internet and then add them to their app. To search for images on Google that can be reused, under copyright</p>	Children can add a map and image gallery into your app.	

	<p>click on the 'Search Tools button above all the results and then choose 'Labelled for non-commercial reuse with modification'. Also give children time to add a map to their app.</p> <p><u>Plenary</u></p> <p><i>What is the benefit of an image gallery? Why is it better than a list of images? How does an interactive map help instead of a normal screenprint of a map?</i></p>		
<p>To plan and design my own app.</p> <p>To gather the information and pictures I wish to display</p>	<p><u>Main input</u></p> <p>It is now time for children to plan and create their own apps about a given topic.</p> <p><i>What sort of information do you want to display? What would people want to find out? How could the information be displayed in an attractive way?</i></p> <p><u>Activity</u></p> <p>Give children a planning format so that they can design the different tabs for their app and what goes on each one. Make sure children plan in sufficient detail about the text and sorts of images they want to use. When plans are complete, ask children to start gathering any information and resources they might need, such as web addresses, text, photos etc.</p> <p><u>Plenary</u></p> <p>Ask children to present back their plans for their apps to the rest of the class.</p> <p><i>What improvements could be made? Why will this improve it?</i></p>	<p>Children can plan and design an app about a given topic.</p> <p>Children can gather the necessary resources they need for that app.</p>	<p>Tie in app to Creative Curriculum topic.</p>
<p>To create an app, considering the way I choose to present information.</p>	<p><u>Main input</u></p> <p>Revise with children how to log into AppShed, open an existing app and add tabs and content to tabs. Remind children about the importance of testing what they have done and then make improvements all the time.</p>	<p>Children can use AppShed to create an app to display information.</p>	

	<p><u>Main activity</u> Using the plans from the previous week, get children to create their apps. Support children with problem-solving and fine-tuning.</p> <p><u>Mini-plenaries and end of lesson plenary</u> Encourage children to regularly publish and preview their apps. <i>What could be better? What still needs to be done?</i></p>		
To test and improve my app	<p><u>Main input</u> This lesson, children will be installing their Apps on iPod Touches, testing and evaluating them. Model for children how to log into AppShed, publish an app and then use a QRCode Scanner on an iPod Touch to open up the app. In Safari, tap on the 'share' button and then 'Add to Home Screen' to install the web app on the home screen.</p> <p><u>Activity</u> Children to use an iPod Touch to open up their own App from App Shed and install it onto the home screen. Pass around the different iPod touches around the class and get children to fill in a feedback form each time: <i>what was good? What could be improved?</i></p> <p><u>Mini-plenary</u> Once several different children have tried out the apps, pass the iPod Touch and evaluation form back to the maker and give children time to read their feedback. <i>What sort of things needed improving?</i> Model how to make improvements to an app and then publish it again.</p> <p><u>Plenary</u> Children to make improvements to their apps based on feedback.</p>	Children can give feedback on apps and then make improvement based on this	

