

Year 5 Computing Medium Term Planning

Year 5	Information Technology	Digital Literacy/e-Safety	Computer Science
Autumn 1 Link to further resources: Computing systems and networks <i>Sharing information</i> Apps/Programs/Activities: The Internet Unplugged activities	- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. - Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration.	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	
	Key Skills/Knowledge	Key Skills/Knowledge	Key Skills/Knowledge
	- I can explain that systems are built using a number of parts. - I can describe that a computer system features inputs, processes, and outputs. - I can explain that computer systems communicate with other devices. - I can identify tasks that are managed by computer systems. - I can identify the human elements of a computer system. - I can explain the benefits of a given computer system.	- I can use technology safely and respectfully. - I can keep my personal login information safe. - I can keep my personal details private. - I can access apps, programs and devices using personal login information. - I can work independently on projects. - I can collaborate with my peers to complete projects.	

- I can recognise that data is transferred using agreed methods.
- I can explain that networked digital devices have unique addresses.
- I can explain that data is transferred over networks in packets.
- I can recognise that connected digital devices can allow us to access shared files stored online.
- I can send information over the internet in different ways.
- I can explain that the internet allows different media to be shared.
- I can suggest strategies to ensure successful group work.
- I can make thoughtful suggestions on my group's work.
- I can compare working online with working offline.
- I can identify different ways of working together online.
- I can recognise that working together on the internet can be public or private.
- I can explain how the internet enables effective collaboration.

	Opportunities for the arts: Search engines help us discover artists and images Artist: Lotta Nieminen Task: Evaluate the effectiveness of the search results using different search engines. Finding and Evaluating Inspiration • Use search engines to locate artists. • Compare search results and discuss reliability. • Question: <i>How do we find good artistic inspiration online?</i>		
Autumn 2 Link to further resources: Creating media Vector drawing Apps/Programs: Google Draw	• Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	

	Key Skills/Knowledge	Key Skills/Knowledge	Key Skills/Knowledge
	• I can recognise that vector drawings are made using shapes. • I can experiment with the shape and line tools. • I can discuss how vector drawings are different from paper-based drawings. • I can identify the shapes used to make a vector drawing. • I can explain that each element added to a vector drawing is an object. • I can move, resize, and rotate objects I have duplicated. • I can use the zoom tool to help me add detail to my drawings. • I can explain how alignment grids and resize handles can be used to improve consistency. • I can modify objects to create a new image. • I can identify that each added object creates a new layer in the drawing. • I can change the order of layers in a vector drawing. • I can use layering to create an image. • I can copy part of a drawing by duplicating several objects.	• I can use technology safely and respectfully. • I can keep my personal login information safe. • I can keep my personal details private. • I can access apps, programs and devices using personal login information. • I can use Google Draw tools.	

	• I can recognise when I need to group and ungroup objects. • I can reuse a group of objects to further develop my vector drawing. • I can create a vector drawing for a specific purpose. • I can reflect on the skills I have used and why I have used them. • I can compare vector drawings to freehand paint drawings. Opportunities for the arts: Illustration and logo design Artist: Charley Harper Task: Create clean, geometric vector illustrations as logos. Challenge children to create a new school logo?		
Spring 1 Link to further resources: Creating media <i>Video editing</i> Apps/Programs: Moviemaker iMovie	• Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	
	Key Skills/Knowledge	Key Skills/Knowledge	Key Skills/Knowledge

- I can explain that video is a visual media format.
- I can identify features of videos.
- I can compare features in different videos.
- I can identify and find features on a digital video recording device.
- I can experiment with different camera angles.
- I can make use of a microphone. I can suggest filming techniques for a given purpose.
- I can capture video using a range of filming techniques.
- I can review how effective my video is.
- I can outline the scenes of my video.
- I can decide which filming techniques I will use.
- I can create and save video content.
- I can store, retrieve, and export my recording to a computer.
- I can explain how to improve a video by reshooting and editing.
- I can select the correct tools to make edits to my video.
- I can make edits to my video and improve the final outcome.
- I can recognise that my choices when making a video will impact the quality of the final outcome.

- I can use technology safely and respectfully.
- I can keep my personal login information safe.
- I can keep my personal details private.
- I can access apps, programs and devices using personal login information.
- I recognise that videos on the internet have been made by people.
- I understand that not every video that I see will be 'real'.

	I can evaluate my video and share my opinions.		
Spring 2 Link to further resources: Data and information Flat-file databases Apps/Programs: J2E Google Sheets	- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information Opportunities for the arts: Combining visual art and storytelling Artist: Hayao Miyazaki Task: Produce a short artistic film with narration from their own writing. Children: - storyboard - compose shots - film sequences - edit footage Art question: <i>How do artists tell stories through moving images?</i>	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	
	Key Skills/Knowledge	Key Skills/Knowledge	Key Skills/Knowledge

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| | <ul style="list-style-type: none"> • I can create multiple questions about the same field. • I can explain how information can be recorded. • I can order, sort, and group my data cards. • I can navigate a flat-file database to compare different views of information. • I can explain what a 'field' and a 'record' is in a database. • I can choose which field to sort data by to answer a given question. • I can explain how information can be grouped. • I can group information to answer questions. • I can combine grouping and sorting to answer more specific questions. • I can choose which field and value are required to answer a given question. • I can outline how 'AND' and 'OR' can be used to refine data selection. • I can choose multiple criteria to answer a given question. • I can select an appropriate chart to visually compare data. • I can refine a chart by selecting a particular filter. • I can explain the benefits of using a computer to create graphs. | <ul style="list-style-type: none"> • I can use technology safely and respectfully. • I can keep my personal login information safe. • I can keep my personal details private. • I can access apps, programs and devices using personal login information. • I can use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • I can select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information. | |
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	• I can ask questions that will need more than one field to answer. • I can refine a search in a real-world context. • I can present my findings to a group. Opportunities to link with the arts: Flat-file databases Organising collections of artwork Artist: Various Task: Build a database of artists, movements and techniques.		
Summer 1 Link to further resources: Programming A <i>Selection in physical computing</i> Apps/Programs/Hardware Crumble Controllers (loan) Scratch 3.0 Sphero (trip) LEGO Mindstorm		• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.
	Key Skills/Knowledge	Key Skills/Knowledge	Key Skills/Knowledge

		• I can use technology safely and respectfully. • I can keep my personal login information safe. • I can keep my personal details private. • I can access apps, programs and devices using personal login information. • I can use a Crumble Controller as an output device on a computer.	• I can create a simple circuit and connect it to a microcontroller. • I can program a microcontroller to make an LED switch on. • I can explain what an infinite loop does. • I can connect more than one output component to a microcontroller. • I can use a count-controlled loop to control outputs. • I can design sequences that use count-controlled loops. • I can explain that a condition is either true or false. • I can design a conditional loop • I can program a microcontroller to respond to an input. • I can explain that a condition being met can start an action. • I can identify a condition and an action in my project. • I can use selection (an 'if...then...' statement) to direct the flow of a program. • I can identify a real-world example of a condition starting an action. • I can describe what my project will do. • I can create a detailed drawing of my project.
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			• I can write an algorithm that describes what my model will do. • I can use selection to produce an intended outcome. • I can test and debug my project. Opportunities for the arts: Interactive art Artist: Rafael Lozano-Hemmer Task: Create digital artwork using Scratch 3.0 that responds to 'if...then' statements when buttons are pressed.
Summer 2 Link to further resources: Programming B <i>Selection in quizzes</i> Apps/Programs: Scratch 3.0		• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

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		• I can use technology safely and respectfully. • I can keep my personal login information safe. • I can keep my personal details private. • I can access apps, programs and devices using personal login information. • I can make an independent Scratch 3.0 project. • I can work collaboratively on a Scratch 3.0 project.	• I can recall how conditions are used in selection. • I can identify conditions in a program. • I can modify a condition in a program. • I can use selection in an infinite loop to check a condition. • I can identify the condition and outcomes in an 'if... then... else...' statement. • I can create a program that uses selection to produce different outcomes. • I can explain that program flow can branch according to a condition. • I can design the flow of a program that contains 'if... then... else...'. • I can show that a condition can direct program flow in one of two ways. • I can outline a given task. • I can use a design format to outline my project. • I can identify the outcome of user input in an algorithm.

			• I can implement my algorithm to create the first section of my program. • I can test my program. • I can share my program with others. • I can identify ways the program could be improved. • I can identify the setup code I need in my program. • I can extend my program further. Interactive Gallery Experience Artist: Various Task: Design a digital quiz using Google Forms where entering the correct answer unlocks further information about the artwork or artist.
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GDS Opportunities	• Children make a multimedia presentation that contains: sound; animation; video and buttons to navigate. • Children save an image document as a gif or jpeg. file format using the 'save as' command. • Children make an information poster using graphics skills to good effect.
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