KS2 Computing Key Content MTP – Autumn 2021-2022

YEAR 3	**Autumn 1**	**Land before time**			**Key Concepts**	**Domains of Knowledge**	**3 Key Questions**
	Unit of work	**Computer Systems and Networks – Connecting Computers**			**Computing systems and networks** (systems, networks and how they are used, the internet, hardware and software)	**NW** **CS** **IT** **ET** **SS**	**Use Teach Computing's Summative Assessment for this unit**
	Suggested lessons	**Lesson 1:** This lesson introduces the concepts of input, process, and output. These concepts are fundamental to all digital devices.	**Lesson 2:** Learners will develop their knowledge of the relationship between inputs, processes, and outputs and apply it to devices and parts of devices that they will be familiar with from their everyday surroundings.	**Lesson 3:** Learners will apply their learning from Lessons 1 and 2 by using programs in conjunction with inputs and outputs on a digital device. They will create two pieces of work with the same focus, using digital devices to create one piece of work, and non-digital tools to create the other. Learners will then compare and contrast the two approaches	**Lesson 4:** Many digital devices are now connected to other digital devices, e.g. computers through wires, tablets through Wi-Fi, and smartphones through mobile phone networks. The benefit of connecting digital devices is that it allows information to be shared between users and systems. This lesson introduces the concept of connections and moving information between connected devices. Learners will learn to explain how and why computers are joined together to form networks.	**Lesson 5:** This lesson introduces key network components, including a server and wireless access points. Learners will examine each device's functionality and look at the benefits of networking computers.	**Lesson 6:** Learners will further develop their understanding of computer networks. They will see examples of network infrastructure in a real-world setting and relate them to the activities in Lesson 5.

	Key Content	I can explain how digital devices function I can identify input and output devices I can recognise how digital devices can change the way we work I can explain how a computer network can be used to share information I can explore how digital devices can be connected I can recognise the physical components of a network					
	Second order concepts	**Responsibility:** I can show responsibility in computing (being safe online, using social media responsibly and respectfully, privacy, cyberbullying) **Similarity and difference:** I can identify similarities and differences (making comparisons, finding patterns, noting differences and drawing conclusions) **Cause and consequence:** I can understand cause and consequence (inputs and outputs, programming) **Significance:** I can discuss significance in computing (significant inventions, significant figures from the world of computing) **Chronology:** I can discuss chronology in computing (changes in technology over time, inventions, future technology) **Written and oral expression:** I can use written and oral expression (Using computing terminology, using technology to support and improve communication, using technology to presenting and interpreting data, digital media)					
	Autumn 2	**Land before time**		**Key Concepts**	**Domains of Knowledge**	**3 Key Questions**	
	Unit of work	**Creating Media – Stop-Frame Animation**		**Creating media:** (design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content)	**CM** **DD** **ET** **SS**	 What is animation? Why do we need to ensure movements are smooth?  Discuss how adding multimedia can improve a stop-frame animation?  Use assessment rubric to aid TA	
	Suggested lessons	**Lesson 1:** Learners will discuss whether they think a picture can move. They will learn about simple animation techniques and create their own animations in the style of flip books (flick books) using sticky notes	**Lesson 2:** In the previous lesson, learners created their own flip book–style animations. In this lesson, they will develop this knowledge and apply it to make a stop-frame animation using a tablet.	**Lesson 3:** Remind the learners of the animations that we created last week and tell them that next week we will use tablets to animate some of our own stories. Tell the learners that during this lesson they will create a storyboard showing the characters, settings and events that they would like to include in their	**Lesson 4:** In the previous lesson, learners planned out their own stop-frame animations in a storyboard. This lesson, they will use tablets to carefully create stop-frame animations, paying attention to consistency.	**Lesson 5:** Last lesson, learners created their own stop-frame animations. This lesson, they will evaluate their animations and try to improve them by creating a brand-new animation based on their feedback.	**Lesson 6:** Last lesson, learners perfected their stop-frame animations. This lesson, they will add other media and effects into their animations, such as music and text.

				own stop-frame animation next week.			
	Key Content	I can explain that animation is a sequence of drawings or photographs					
		I can relate animated movement with a sequence of images					
		I can plan an animation					
		I can identify the need to work consistently and carefully					
		I can review and improve an animation					
		I can evaluate the impact of adding other media to an animation					
	Second order concepts	**Responsibility:** I can show responsibility in computing (being safe online, using social media responsibly and respectfully, privacy, cyberbullying)					
		Similarity and difference: I can identify similarities and differences (making comparisons, finding patterns, noting differences and drawing conclusions)					
		Cause and consequence: I can understand cause and consequence (inputs and outputs, programming)					
		Significance: I can discuss significance in computing (significant inventions, significant figures from the world of computing)					
		Chronology: I can discuss chronology in computing (changes in technology over time, inventions, future technology)					
		Written and oral expression: I can use written and oral expression (Using computing terminology, using technology to support and improve communication, using technology to presenting and interpreting data, digital media)					
YEAR 4	**Autumn 1**	**Empire strikes back!**		**Key Concepts**	**Domains of Knowledge**	**3 Key Questions**	
	Unit of work	**Computer Systems and Networks – The Internet**		**Computing systems and networks** (systems, networks and how they are used, the internet, hardware and software)	**NW CS IT ET SS**	**Use Teach Computing's Summative Assessment for this unit**	
	Suggested lessons	**Lesson 1:** Learners will explore how a network can share messages with another network to form the internet. They will consider some of the network devices involved in this, such as routers, and will also discuss what should be kept in and out of a	**Lesson 2:** Learners will describe the parts of a network and how they connect to each other to form the internet. They will use this understanding to help explain how the internet lets us view the World Wide Web and recognise that the World Wide Web is part of the internet which contains websites and web pages.	**Lesson 3:** Learners will explore what can be shared on the World Wide Web and where websites are stored. They will also explore how the World Wide Web can be accessed on a variety of devices.	**Lesson 4:** Learners will analyse a website and identify the key parts. They will then consider what content can be added to websites and what factors they should consider before adding content to a website. Finally, they will use a website which enables them to create their own content online.	**Lesson 5:** Learners will explore who owns the content on the World Wide Web (or 'web' for short). They will explore a variety of websites and will investigate what they can and cannot do with the content on them. They will also relate this to principles of ownership and sharing in the real world.	**Lesson 6:** Learners will gain an appreciation of the fact that not everything they see on the internet is true, honest, or accurate. They will review images and decide whether or not they are real, before looking at why web searches can return ambiguous (and sometimes misleading) results. Finally, learners will complete a practical activity, demonstrating

		network to keep safe					how quickly information can spread beyond their control
	Key Content	I can describe how networks physically connect to other networks					
		I can recognise how networked devices make up the internet					
		I can outline how websites can be shared via the World Wide Web (WWW)					
		I can describe how can content can be added and accessed on the World Wide Web (WWW)					
		I can recognise how the content of the WWW is created by people					
		I can evaluate the consequences of unreliable content					
	Second order concepts	**Responsibility:** I can show responsibility in computing (being safe online, using social media responsibly and respectfully, privacy, cyberbullying)					
		Similarity and difference: I can identify similarities and differences (making comparisons, finding patterns, noting differences and drawing conclusions)					
		Cause and consequence: I can understand cause and consequence (inputs and outputs, programming)					
		Significance: I can discuss significance in computing (significant inventions, significant figures from the world of computing)					
		Chronology: I can discuss chronology in computing (changes in technology over time, inventions, future technology)					
		Written and oral expression: I can use written and oral expression (Using computing terminology, using technology to support and improve communication, using technology to presenting and interpreting data, digital media)					
	Autumn 2	**Empire strikes back!**		**Key Concepts**	**Domains of Knowledge**	**3 Key Questions**	
	Unit of work	**Creating Media – Audio Editing**		**Creating media:** (design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content)	**ET** **CM** **IT** **SS**	 Identify devices' inputs and outputs in relation to sound.  What are the features of a podcast? Why can copying someone else's work from the internet without permission cause problems?  Use assessment rubric to aid TA	
	Suggested lessons	**Lesson 1:** In this lesson, learners will familiarise themselves with digital devices capable of recording sound and/or playing audio. Learners will identify devices' inputs (microphone) and outputs	**Lesson 2:** In this lesson, learners will record their own sounds and play back the recorded audio. They will also listen to a range of podcasts and identify the features of a podcast. CC-Science	**Lesson 3:** In this lesson, learners will plan and begin recording their own podcast. They will also discuss the importance of saving their work and save their recordings as a file. **Note:** Due to the amount of time required to plan the podcast content, the written parts	**Lesson 4:** In this lesson, learners will open their existing work and continue recording their podcast content. Learners will also edit their recordings, for example by changing the volume of the recording or making the recording fade in or out.	**Lesson 5:** In this lesson, learners will record additional content for their podcast, such as sound effects or background music. The audio will be combined, or mixed, with their existing digital recordings and exported as an audio file. CC-Music	**Lesson 6:** In this lesson, learners will export their digital recordings so that they can be listened to on a range of digital devices. Learners will give feedback on their own and their peers' podcasts, including areas for improvement.

		(headphones or speakers). Learners will consider ownership and copyright issues relating to the recording of audio.		of the planning template could be completed in a different subject's lesson (e.g. English, or a subject related to the podcast content).			
	Key Content	I can identify that sound can be digitally recorded					
		I can use a digital device to record sound					
		I can explain that a digital recording is stored as a file					
		I can explain that audio can be changed through editing					
		I can show that different types of audio can be combined and played together					
		I can evaluate editing choices made					
	Second order concepts	**Responsibility:** I can show responsibility in computing (being safe online, using social media responsibly and respectfully, privacy, cyberbullying)					
		Similarity and difference: I can identify similarities and differences (making comparisons, finding patterns, noting differences and drawing conclusions)					
		Cause and consequence: I can understand cause and consequence (inputs and outputs, programming)					
		Significance: I can discuss significance in computing (significant inventions, significant figures from the world of computing)					
		Chronology: I can discuss chronology in computing (changes in technology over time, inventions, future technology)					
		Written and oral expression: I can use written and oral expression (Using computing terminology, using technology to support and improve communication, using technology to presenting and interpreting data, digital media)					
YEAR 5	**Autumn 1**	**Up the chimneys and down the mines**		**Key Concepts**	**Domains of Knowledge**	**3 Key Questions**	
	Unit of work	**Computer Systems and Networks – Sharing Information**		**Computing systems and networks** (systems, networks and how they are used, the internet, hardware and software)	**NW CS IT ET SS**	**Use Teach Computing's Summative Assessment for this unit**	
	Suggested lessons	**Lesson 1:** This lesson introduces learners to the concept of a system. Learners will develop their understanding of components working together to make a whole. They will outline how digital	**Lesson 2:** In this lesson, learners will consider how larger computer systems work. Learners will consider how devices and processes are connected. They will also reflect on how computer systems can help us.	**Lesson 3:** This lesson introduces the idea that parts of a computer system are not always in the same place or country. Instead, those parts of a system must transfer information using the internet. This lesson builds on the introduction to the	**Lesson 4:** In this lesson, learners will consider how people can work together when they are not in the same location. They will discuss ways of working and start a collaborative online project. The online activity assumes that	**Lesson 5:** In this lesson, learners will reflect on how they worked together in the previous lesson and how their working together might be improved. Learners will work together on an unplugged activity and use that experience to develop their own ideas	**Lesson 6:** In the previous two lessons, learners worked together online on a shared project. This lesson introduces another approach to online working: reusing and modifying work done by someone else. (Using someone else's work needs to be done

		systems might work and the physical and electronic connections that exist.		internet in the Year 4 'What is the internet?' unit, adding awareness of IP addresses and the rules (protocols) that computers have for communicating with one another.	learners can make simple slides including text and images. If your learners are unsure how to do this, you may wish to spend some time on the Year 3 'Desktop publishing' unit before this lesson	of good collective working practices.	within the bounds of copyright and with the relevant permissions.) This lesson uses the Scratch programming tool, which allows learners to use other people's work.
	Key Content	I can explain that computers can be connected together to form systems					
		I can recognise the role of computer systems in our lives					
		I can recognise how information is transferred over the internet					
		I can explain how sharing information online lets people in different places work together					
		I can contribute to a shared project online					
		I can evaluate different ways of working together online					
	Second order concepts	**Responsibility:** I can show responsibility in computing (being safe online, using social media responsibly and respectfully, privacy, cyberbullying)					
		Similarity and difference: I can identify similarities and differences (making comparisons, finding patterns, noting differences and drawing conclusions)					
		Cause and consequence: I can understand cause and consequence (inputs and outputs, programming)					
		Significance: I can discuss significance in computing (significant inventions, significant figures from the world of computing)					
		Chronology: I can discuss chronology in computing (changes in technology over time, inventions, future technology)					
		Written and oral expression: I can use written and oral expression (Using computing terminology, using technology to support and improve communication, using technology to presenting and interpreting data, digital media)					
	Autumn 2	**Up the chimneys and down the mines**		**Key Concepts**	**Domains of Knowledge**	**3 Key Questions**	
	Unit of work	**Creating Media – Video Editing**		**Creating media:** (design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content)	**CM IT ET SS DD**	 Explain what the medium of video is.  Describe some effective filming techniques.  Why is it important to edit and evaluate recorded film clips? Use assessment rubric to aid TA	
	Suggested lessons	**Lesson 1:** Learners will be introduced to video as a media format.	**Lesson 2:** Learners will explore the capabilities of a digital device that can	**Lesson 3:** Learners will use a storyboard to explore a variety of filming	**Lesson 4:** Learners will plan a video by creating a storyboard. Their	**Lesson 5:** Learners will film the remaining scenes of their video, and then	**Lesson 6:** Learners will complete their video by removing unwanted content and

		They will see examples of videos featuring production and editing techniques that they will work towards using their own videos. Learners will begin by explaining what the medium of video is before analysing and comparing examples of videos.	be used to record video. Once they are familiar with their device, learners will experiment with different camera angles, considering how different camera angles can be used for different purposes.	techniques, some of which they will use in their own video project later in the unit. They will evaluate the effectiveness of these techniques before offering feedback on others' work.	storyboard will describe each scene, and will include a script, camera angles, and filming techniques. Learners will use their storyboards to film the first scene of their videos.	import their content to video editing software. They will then explore key editing techniques and decide whether sections of their video can be edited or need to be shot again.	reordering their clips. They will then export their finished video and evaluate the effectiveness of their edits. Finally, they will consider how they could share their video with others.
	Key Content	I can explain what makes a video effective					
		I can use a digital device to record video					
		I can capture video using a range of techniques					
		I can create a storyboard					
		I can identify that video can be improved through reshooting and editing					
		I can consider the impact of the choices made when making and sharing a video					
	Second Order Concepts	**Responsibility:** I can show responsibility in computing (being safe online, using social media responsibly and respectfully, privacy, cyberbullying)					
		Similarity and difference: I can identify similarities and differences (making comparisons, finding patterns, noting differences and drawing conclusions)					
		Cause and consequence: I can understand cause and consequence (inputs and outputs, programming)					
		Significance: I can discuss significance in computing (significant inventions, significant figures from the world of computing)					
		Chronology: I can discuss chronology in computing (changes in technology over time, inventions, future technology)					
		Written and oral expression: I can use written and oral expression (Using computing terminology, using technology to support and improve communication, using technology to presenting and interpreting data, digital media)					

	Autumn 1	**Around the World in 80 Days**	**Key Concepts**	**Domains of Knowledge**	**3 Key Questions**
	Unit of work	**Computer Systems and Networks – Communication**	**Computing systems and networks** (systems, networks and how they are used, the internet, hardware and software)	**NW** **CS** **IT** **ET** **SS**	**Use Teach Computing's Summative Assessment for this unit**

YEAR 6	**Suggested lessons**	**Lesson 1:** In this lesson, learners will be introduced to a range of search engines. They will be given the opportunity to explain how we search, then they will write and test instructions. Next, they will learn that searches do not always return the results that we are looking for, and will refine their searches accordingly. Finally, they will be introduced to the two most common methods of searching: using a search engine and the address bar.	**Lesson 2:** In this lesson, learners will gain an understanding of why search engines are necessary to help us find things on the World Wide Web. They will conduct their own searches and break down, in detail, the steps needed to find things on the web. They will then emulate web crawlers to create an index of their own classroom. Finally, they will consider why some searches return more results than others.	**Lesson 3:** This lesson includes an unplugged activity in which the class will learn about some of the main factors that influence how a search engine ranks a web page. Learners will create paper-based 'web pages' in groups, on a topic that they are currently studying. They will then discover how their web pages would rank when searching for keywords relating to their content.	**Lesson 4:** In this lesson, learners will explore how the person performing a web search can influence the results that are returned, and how content creators can optimise their sites for searching. Learners will also explore some of the limitations of searching, then discuss what cannot be searched.	**Lesson 5:** In this lesson, learners will deepen their understanding of the term 'communication'. They will explore different methods of communication, then they will consider internet-based communication in more detail. Finally, they will evaluate which methods of communication suit particular purposes.	**Lesson 6:** In this lesson, learners will use information provided and their own prior knowledge to categorise different forms of internet communication. They will then choose which method they would use for the scenarios discussed in the previous lesson. During these activities, they will explore issues around privacy and information security.
	Key Content	I can identify how to use a search engine					
		I can describe how search engines select results					
		I can explain how search results are ranked					
		I can recognise why the order of results is important, and to whom					
		I can recognise how we communicate using technology					
		I can evaluate different methods of online communication					
	Second order concepts	**Responsibility:** I can show responsibility in computing (being safe online, using social media responsibly and respectfully, privacy, cyberbullying)					
		Similarity and difference: I can identify similarities and differences (making comparisons, finding patterns, noting differences and drawing conclusions)					
		Cause and consequence: I can understand cause and consequence (inputs and outputs, programming)					
		Significance: I can discuss significance in computing (significant inventions, significant figures from the world of computing)					
		Chronology: I can discuss chronology in computing (changes in technology over time, inventions, future technology)					
		Written and oral expression: I can use written and oral expression (Using computing terminology, using technology to support and improve communication, using technology to presenting and interpreting data, digital media)					

Autumn 2	Around the World in 80 Days	Key Concepts	Domains of Knowledge	3 Key Question
Unit of work	**Creating Media – Web Page Creation**	**Creating media:** (design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content)	**DD** **CM** **ET** **SS** **IT**	 What are the different types of media used on web pages?  What is meant by the term 'fair use'? Describe why navigation paths are useful for web pages.  Use assessment rubric to aid TA

Suggested lessons	Lesson 1:	Lesson 2:	Lesson 3:	Lesson 4:	Lesson 5:	Lesson 6:
	In this lesson, learners will explore and review existing websites and evaluate their content. They will have some understanding that websites are created by using HTML code.	Learners will look at the different layout features available in Google Sites and plan their own web page on paper. **Homework:** Learners will look at two of their favourite websites and sketch them on the worksheet provided, detailing the similarities and differences. **Note:** For the homework activity, teachers could provide printed 'home page' images for anyone who doesn't have internet access at home.	During this lesson learners will become familiar with the terms 'fair use' and 'copyright'. They will gain an understanding of why they should only use copyright-free images and will find appropriate images to use in their work from suggested sources. **Homework:** Learners answer a series of questions based on copyright and fair use.	Today learners will revise how to create their own web page in Google Sites. Using their plan from previous lessons, learners will create their own web page/home page. They will preview their web page as it will appear on different devices and suggest or make edits to improve the user experience on each device.	During this lesson learners will begin to appreciate the need to plan the structure of a website carefully. They will plan their website, paying attention to the navigation paths (the way that pages are linked together). They will then create multiple web pages for their site and use hyperlinks to link them together as detailed in their planning.	Learners will consider the implications of linking to content owned by other people and create hyperlinks on their own websites that link to other people's work. They will then evaluate the user experience when using their own website and that of another learner. .

Key Content
I can review an existing website and consider its structure
I can plan the features of a web page
I can consider the ownership and use of images (copyright)
I can recognise the need to preview pages
I can outline the need for a navigation path

		I can recognise the implication of linking to content owned by other people
	Second order concepts	**Responsibility:** I can show responsibility in computing (being safe online, using social media responsibly and respectfully, privacy, cyberbullying)
		Similarity and difference: I can identify similarities and differences (making comparisons, finding patterns, noting differences and drawing conclusions)
		Cause and consequence: I can understand cause and consequence (inputs and outputs, programming)
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