Ormiston Meridian Academy

[OAT] Ormiston Academies Trust AN OAT ACADEMY

Sandon Road, Meir, Stoke-on-Trent, ST3 7DF **Telephone:** 01782 377100 **Fax:** 01782 377101
Email: info@omera.co.uk **Website:** www.ormistonmeridianacademy.co.uk
Principal: Mrs C Stanyer

Subject - Computing	Year 8	Curriculum Map 2022 -2023
Week Commencing	**Topic** (including links to additional resources)	**Assessment Window**
STAFF INSET 05/09 Y7 DAY 06/09 ALL STUDENT IN 07/09	Induction	
12/09/2022	**Computing Systems**. ***Get in gear*** . In this lesson about computing systems, you will focus on what sets these devices apart from other purpose-built machinery: it is their ability to execute programs that allows them to modify their operation and perform different tasks, and thus become our most versatile 'tool for thought'. To develop an understanding of this unique characteristic, learners will compare calculating machines from the past to modern general-purpose computers.	
19/09/2022	**Computing Systems**. ***Under the hood***. It is now time to introduce learners to the hardware components, i.e. the actual 'machinery' that allows computing systems to fulfil this purpose. Learners will discover how all computing systems, regardless of form or capabilities, make use of the same components: a processor, memory, storage, input and output devices, and communication components. They will form a simple, concise picture of what each of these 'universal' components does, and how they work together in order to execute programs.	
26/09/2022	**Computing Systems.** ***Orchestra conductor.*** Embed the abstract descriptions of how the processor, memory, storage, and communication components interact with each other and function as a system will now in concrete, familiar scenarios that the learners will investigate. Through the activities in this lesson, learners will look under the surface and gain a further glimpse into what goes on under the hood when they use computing devices. This lesson will also introduce the operating system, which is responsible for managing the complexity of modern computing devices. Here, operating systems will serve as an additional bridge between theory and practice.	
03/10/2022	**Computing Systems**. ***It's only logical***. Part 1 Learners are likely to be familiar with the NOT, AND, and OR logical operators from programming. Through practice, learners can master the use of logical expressions in software, but it is a different story altogether to uncover the connection between logic and computing hardware. This is the deeper goal of the lesson: to bridge the gap between logic and circuits, and make the direct link between them explicit. This is the last step in the learners' journey through the hierarchy of a computing system, from programs, to the hardware responsible for executing the programs, and now, to the fundamental components that comprise this hardware.	
10/10/2022	**Computing Systems**. ***It's only logical***. Part 2 Learners are likely to be familiar with the NOT, AND, and OR logical operators from programming. Through practice, learners can master the use of logical expressions in software, but it is a different story altogether to uncover the connection between logic and computing hardware. This is the deeper goal of the lesson: to bridge the gap between logic and circuits, and make the direct link between them explicit. This is the last step in the learners' journey through the hierarchy of a computing system, from programs, to the hardware responsible for executing the programs, and now, to the fundamental components that comprise this hardware.	

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17/10/2022	AR1 Revision	AR1
October Half Term		
31/10/2022	AR1 Assessment	AR1
7/11/2022	DDI Wave 1 reteach	
14/11/2022	DDI Wave 1 retest, wave 2 activity	
21/11/2022	**Computing Systems**. ***Thinking Machines***. Part 1 Alan Turing "[proposed] to consider the question, 'Can machines think?'" In this lesson, learners will attempt to define the term 'artificial intelligence', and explore the kinds of problems that it has traditionally dealt with. They will also focus on machine learning, and investigate its relationship with conventional programming. Learners will move on to use Google Teachable Machine, to gain an insight into what training a model involves, and the ethical considerations that are tied into building any system that makes decisions.	
28/11/2022		
5/12/2022	**Computing Systems**. ***Thinking Machines***. Part 2 Alan Turing "[proposed] to consider the question, 'Can machines think?'" In this lesson, learners will attempt to define the term 'artificial intelligence', and explore the kinds of problems that it has traditionally dealt with. They will also focus on machine learning, and investigate its relationship with conventional programming. Learners will move on to use Google Teachable Machine, to gain an insight into what training a model involves, and the ethical considerations that are tied into building any system that makes decisions.	
12/12/2022	Learning checkpoint 1	
Christmas Break		
02/01/2023	**Cybersecurity** – ***You and your data.*** The aim of this lesson is to introduce the learners to the unit and to help them understand the value of data to companies. The focus will be on what data companies collect from their users and how they use it. Learners will explore this topic through scenarios as well as by looking at the privacy policies of some tech companies that they may already be giving data to. They will be introduced briefly to the law regarding data protection and will reflect on why cybercriminals might want to gain access to data.	

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9/01/2023	**Cybersecurity** – ***Social engineering.*** The aim of this lesson is for learners to become aware of how humans can be a weak point in the system, as well as looking at the social engineering tactics deployed by cybercriminals to dupe users into giving away data that could lead to further crime. The lesson starts with the learners using a Scratch program aimed at tricking them into giving away personal information. Learners will then be taken through the common social engineering techniques, completing exercises through the lesson to encourage them to think more deeply about the consequences of the scams and how to avoid becoming a victim.	
16/01/2023	**Cybersecurity** – ***Script kiddies. Part 1*** This lesson allows the learners to explore the concept of hacking and the techniques used by hackers to exploit computer systems. The lesson starts with the learners looking for clues to hack into a friend's account to help his parents find out where he is. They will then be forced to think about the ethics behind their actions. The rest of the lesson looks at terms such as brute force attacks, hacktivists, script kiddies, and DDoS attacks. Some of the key terminology is introduced around the real-life example of the Dyn attack that disabled DNS servers (mostly in the USA) for a time. The lesson will conclude with the learners exploring the Computer Misuse Act and the consequences of hacking.	
23/01/2023	AR2 Revision	AR2
30/01/2023	AR2 Assessment	AR2
6/02/2023	DDI Wave 1 reteach	
13/02/2023	DDI Wave 1 retest, wave 2 activity	
February Half Term		
27/02/2023	**Cybersecurity** – ***Script kiddies. Part 2*** This lesson allows the learners to explore the concept of hacking and the techniques used by hackers to exploit computer systems. The lesson starts with the learners looking for clues to hack into a friend's account to help his parents find out where he is. They will then be forced to think about the ethics behind their actions. The rest of the lesson looks at terms such as brute force attacks, hacktivists, script kiddies, and DDoS attacks. Some of the key terminology is introduced around the real-life example of the Dyn attack that disabled DNS servers (mostly in the USA) for a time. The lesson will conclude with the learners exploring the Computer Misuse Act and the consequences of hacking.	
6/03/2023	**Cybersecurity** – ***Rise of the bots.*** The purpose of this lesson is to make learners aware of malware and the different categories of malware, as well as understanding how they work and the potential damage they can do. This lesson focuses more on the technical side than on prevention methods, which will be covered in the next lesson. This lesson will start with a pretend scenario of the network having been infected by ransomware; the learners have to decide what action to take. They will then be introduced to the key terms before being instructed to do a research task to create a fact-based quick read on one type of malware they have learnt about. Towards the end of the lesson, the learners will be introduced to web bots and what task they	

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	perform on the internet. They will then be shown how bots are used in conjunction with malware and will be given a scenario that allows them to understand the hidden role of bots and what potential influence they could have on societal issues.	
13/03/2023	**Cybersecurity** – ***There's no place like 127.0.0.1.*** The aim of this lesson is for learners to develop their understanding of the risks that cyber threats pose to a network, followed by an exploration of some of the more common methods of defending a network against attacks, such as firewalls and anti-malware. The learners will look at the more common threats that exist globally before thinking of the threats at the level of a school network. Learners will discuss methods used by network managers to reduce risk. The homework for this lesson is to write a short report to the head teacher on how to manage the most significant risk to the school network.	
20/03/2023	Learning checkpoint 2	
27/03/2023	**Representations**. ***Binary digits.*** Learners grasp what binary digits are by associating them with familiar sets of symbols such as letters and decimal digits. Learners solve simple problems that reinforce the connection between (alphanumeric) information and its binary representation. They also consider the question of why binary digits are predominantly used in conjunction with computing systems.	
Easter		
17/04/2023	**Representations**. ***Numbers in binary.*** Learners build upon their familiarity with using a decimal numbering system, in order to draw analogies with how numbers can be represented using binary. They use activities, either unplugged or software-based, to become familiar with binary number representation and convert between binary and decimal.	
24/04/23	**Representations**. ***Handling large quantities of data.*** This lesson familiarises learners with bytes and the prefixes used for measuring representation size, such as 'kilo-', 'mega-', 'giga-' and 'tera-'. Simple activities embed these concepts in real-life settings and introduce learners to conversions between the different units and multiples.	
1/05/2023	**Programming essentials II. Programming**. Students will be reminded of the three main programming constructs of sequence, selection and iteration. They will challenge themselves as they work through the Mario, Flappy Bird and Light Bot activities. Code Combat activities on the Hour of Code website. The concept of a variable is emphasized and will be tested in the AR3 assessment.	
8/05/2023	**Programming essentials II. Programming**. Students will continue to apply the three main programming constructs of sequence, selection and iteration. They will challenge themselves as they work through the Code Combat and Light Bot activities on the Hour of Code website. The concept of a variable is emphasized and will be tested in the AR3 assessment.	
15/05/23	AR3 Revision	AR3
22/05/23	AR3 Assessment	AR3

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May Half Term		
05/06/2023	DDI Wave 1 reteach	
12/06/2023	DDI Wave 1 retest, wave 2 activity	
19/06/2023	**Programming essentials II. Programming in Logo** Students will learn that computers control events by sequences of instructions and the importance of the correct sequencing of instructions. Students will complete a variety of challenges writing code in the basic programming language of Logo.	
26/06/2023	**Programming essentials II. Programming in Logo.** Students will be introduced to the concepts of procedures in logo. Students will now write and store programs in procedures.	
3/07/2023	Learning checkpoint 3	
10/07/2023	**Programming essentials II. Programming in Logo.** Students will be introduced to the concept of decomposition and apply decomposition to a complex task in Logo.	
17/07/2023	**E-safety Awareness week**. Students will reflect upon their online activities and discuss a variety of e-safety related topics including digital consent and sexting.	
24/07/2023	Contingency	