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 9**	**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	**Representations** – ***Binary mosaic.*** Digital pictures are formed out of individual pixels (picture elements), just like the Greek and Roman mosaics are formed out of individual pieces of glass or stone. However, unl ke their ancient counterparts, the elements in digital mosaics are aligned in rows and columns, with the colour of each element represented as a sequence of binary digits. In this lesson, learners will create digital mosaics pixel by pixel, and experience how an image composed of individual coloured elements can correspond to a sequence of binary digits. This will help them form an initial understanding of how the images that they encounter daily in their digital devices translate to nothing more than long strings of bits.	
12/09/2022		
19/09/2022	**Representations** – ***A splash of colour.*** In the early days of personal computers, graphics were displayed in a range of different resolutions and colour depths, depending on the hardware available. Nowadays, while resolution is still being increased, there is no mention of colour depth or the number of possible colours available. We have used 24 or 32 bits for years, as this has been sufficient. In the previous lesson, learners were introduced to the idea that the colour of each pixel can be represented as a sequence of binary digits. In this lesson, they will explore the most common representation of colour as a mixture of red, green, and blue: the level of each of these colours in the mixture is represented using an 8-bit sequence, producing a total of 24 bits to represent the colour of any single pixel. Learners will also build on their existing knowledge to calculate the representation size of digital images.	
26/09/2022	**Representations** – ***Collage.*** After introducing learners to the ideas behind digital image representation, it's now time for a hands-on approach. In this lesson, learners will use appropriate software to perform a range of image manipulation functions and complete specific tasks and challenges. Learners will already have varying levels of experience and proficiency in using image editing software, so this is a flexible lesson, with a range of activities provided to suit different needs and tastes.	
03/10/2022		
10/10/2022	**Representations** – ***Good vibrations.*** Tracing the steps of a hiker through the altitude data that she transmits, learners will familiarise themselves with the basic concepts necessary for understanding any analogue to digital conversion: samples, sampling rate, and sample size. The main goal is for learners to understand the 'big picture' of how sound is captured, digitised, manipulated, and reproduced in digital devices.	
17/10/2022	**Representations** – ***Sonic playground.*** First, learners will revisit the digitisation process, in order to understand how the sampling rate and the sample size affect the size and quality of the representation. Next, they will use a sound editing program that will allow them to experiment with sound to complete specific tasks and challenges. Learners will have varying levels of experience and proficiency in using sound editing software, so this is a flexible lesson, with a range of activities provided to suit different needs and tastes.	
October Half Term		

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31/10/2022	AR1 Revision	
7/11/2022	AR1 Assessment	AR1
14/11/2022	DDI Wave 1 reteach, Learning checkpoint 1	AR1
21/11/2022	DDI Wave 1 retest, wave 2 activity	
28/11/2022	**The start up - *Enterprise & Entrepreneurship*** In this unit, students will be introduced to a range of business concepts and topics and apply their ICT skills in a meaningful world of work setting. Students will be presented with a scenario where an opportunity exists for a new business venture. They will first identify what it means to be an entrepreneur and the skills/personal qualities of a successful entrepreneur.	
5/12/2022	**The start up. *Risk& Reward.*** Students will now learn about the risks and rewards of becoming an entrepreneur.	
12/12/2022	**The start up. *Promoting the Business.*** Students will now learn about the different methods of promotion, considering their target market and branding.	
Christmas Break		
02/01/2023	**The start up. *Branding & Logo Design.*** Students will use their ICT skills to create a range of promotional marketing products to support their brand identity, starting off with an effective logo.	
9/01/2023 16/01/2023	**The start up. *Branding & Animated Advertising Banner*.** Students will use their ICT skills in Fireworks to create a range of animated advertising banners, promoting their business event.	
23/01/2023	**The start up. *Marketing Pack*.** Students will produce a marketing pack including a portfolio of all their final designs, together with the rationale for their design choices.	
30/01/2023	**The start up. *The Presentation*.** Students will present their marketing campaign.	
6/02/2023	AR1 Revision	AR2

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13/02/2023	AR1 Assessment	AR2
February Half Term		
27/02/2023	DDI Wave 1 reteach, Learning Checkpoint 2	
6/03/2023	DDI Wave 1 retest, wave 2 activity	
13/03/2023	**Programming essentials III Flowol.** Students will recall, retrieve and reapply the 3 basic programming constructs of sequence, selection and iteration. Students use a range of basic Flowol simulations to apply sequence and selection to basic problems.	
20/03/2023	**Programming essentials III Flowol.** Students will recall, retrieve and reapply the 3 basic programming constructs of sequence, selection and iteration. Students use a range of basic Flowol simulations to apply sequence and selection to increasingly complex problems.	
27/03/2023	**Programming essentials III Flowol.** Students be set final practical summative assessment on a Flowol Pelican crossing simulation with opportunities to show their mastery of programming: sequence, selection, iteration, sub routines and a sub routine count.	
Easter		
17/04/2023	**Python Programming**. ***First steps.*** In this introductory lesson, learners will write and execute their first programs in Python. They will go through the basics of displaying messages, assigning values to variables, and receiving input from the keyboard. They will familiarize themselves with an entirely different programming environment than the block-based one that they may be accustomed to. It is an environment where they will need to know by heart all of the constructs that they can use, instead of having the options laid out in front of them. It is also an environment in which errors arise if they get a single letter or symbol wrong. One of the main goals of this lesson (and of the unit) is to support them in this transition, by providing associations with concepts that they are already familiar with and building their confidence in overcoming common obstacles. Before doing any programming, learners will be introduced to what algorithms and programs are, and how they are different. Through this discussion, they will start to build an understanding of what it means to express instructions in a formal language, and how these instructions can eventually be executed by a machine.	
24/04/23	**Python Programming**. ***Crunching numbers.*** In the previous lesson, learners were introduced to displaying messages, assigning values to variables, and receiving input from the keyboard. This lesson will help them gain a deeper understanding of assignments, and explicitly address some of the common misconceptions around the semantics of assignment statements. Learners will also be introduced to using arithmetic expressions and receiving numerical input from the keyboard. These are two key components that will allow them to progress to building more elaborate programs in the lessons to follow. The main activity in this lesson will require	

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	learners to construct their own short programs for the first time, through scaffolded tasks.	
1/05/2023	**Python Programming**. ***At a crossroads***. This lesson introduces selection and randomness. These are two features that will allow learners to develop programs with a very diverse range of behaviours. Learners will revisit some of the programs that they have encountered in previous lessons and extend them into more versatile programs that use selection. They will develop a simple number guessing game, which will eventually include randomness.	
8/05/2023	**Python Programming**. ***More branches***. This lesson progresses to multi-branch selection, then introduces while, the general-purpose iterative structure available in Python. Learners will explore problems that will allow them to deepen their comprehension of when and how selection should be used. For example, they will build programs that check the weather conditions where they are living and display appropriate responses. They will also be introduced to iteration, making sure that they understand the mechanics of how it works, before they go on to build their own iterative programs in the next lesson. At times, learners will import and use functions from 'home-grown' modules, i.e. modules that have been created exclusively for the purposes of the lesson. This will give them an insight into how a text-based language can be more powerful than block-based languages, without placing additional cognitive burden on them.	
15/05/23	**Python Programming**. ***Round and Round.*** In the first part of this lesson, learners will be introduced to counting. Counters are important, as they are the simplest example of variables that are used to compute results iteratively, with each new value accumulated over the previous ones. In the second part of the lesson, learners will apply the skills and knowledge that they have developed to create a times tables practice game. It is an example that naturally combines iteration and selection, while also being useful..	
22/05/23	**Python Programming**. ***Putting it all together.*** In this final lesson of the unit, learners will apply and consolidate what they've learnt by extending the number guessing game that they developed previously into an iterative version that allows them multiple guesses	
May Half Term		
05/06/2023	AR1 Revision	AR3
12/06/2023	AR1 Assessment	AR3
19/06/2023	DDI Wave 1 reteach, Learning Checkpoint 3	
26/06/2023	DDI Wave 1 retest, wave 2 activity	

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3/07/2023	**Sorting Algorithms- Bubble Sort** Students will reflect upon the purpose of an algorithm and learn about a simple computing algorithm called the bubble sort.	
10/07/2023	**Sorting Algorithms – Merge and Insertion Sort** Students learn about two further sorting algorithms.	
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, the impact of cyber bullying and trolling and child sexual exploitation.	
24/07/2023	Contingency	

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