Oasis Media City Subject Curriculum Plan

Subject: Computing **Head of Subject**: **Date updated**:

This document is an overview of the learning that students will experience within their subject area. This is a working document that provides teachers, students and parents with a map of key content that will be delivered during lessons in each year group.

Year	**Half Term:**	**1** (7 weeks)	**2** (7 weeks)	**3** (7 weeks)	**4** (5 weeks)	**5** (6 weeks)	**6** (7 weeks)
7	*Topic(s):*	*Impact of technology – Collaborating online respectfully*	Modelling data - Spreadsheets	Networks from semaphores to the Internet	Programming essentials in Scratch – part 1	Programming essentials in Scratch – part 2	Using media – Gaining support for a cause
	Key Words(1 p/wk):	Passwords, E-safety, Internet, Online, Communication, Audience	Spreadsheet, Excel, Database, Access, Row, Column, Table, Data,	Network, LAN, WAN, PAN, Bandwidth, Buffering	Scratch, Program, Sequence, Selection, Iteration, Sprite, Operator, Subroutine, Algorithm	Scratch, Program, Sequence, Selection, Iteration, Sprite, Operator, Subroutine. Algorithm	Word processing, Credibility, Promotion, Licence, Copyright, Viral
	Link to subject context:	*Basic computing skills, Staying safe online, Digital footprint, social media etiquette*	Digital literacy, working with data, using common software	Networks, World Wide Web, Internet, Communication	Programming, Algorithms, Computational thinking, Problem solving	Programming, Algorithms, Computational thinking, Problem solving	World Wide Web, Digital Literacy, communicating online
	Link to Careers:	*Social media management, Basic ICT skills are useful in a range of careers*	Administration roles, Financial services, Data science	Network Management	Software development, Many STEM fields require	Software development, Many STEM fields require programming knowledge	Computer engineer, computer repairs

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					programming knowledge		
	Assessment Type:						
8	*Topic(s):*	Programming essentials in Scratch – part 2	Introduction to Python Programming	Developing for the Web	Media – Vector Graphics	Mobile App Development	Computing Systems
	Key Words(1 p/wk):	Scratch, Program, Sequence, Selection, Iteration, Sprite, Operator, Subroutine. Algorithm	Sequence, Selection, Iteration, Algorithm, Variable, String, Integer, Float	World Wide Web, HTML, CSS, Javascript, IDE, Search engine	Pixel, Vector, Bitmap, Graphics, Scaling,	World Wide Web, Application, Programming, Variable, Input, Output	Logical, Processor, Memory, Storage, Hardware, Software
	Link to subject context:	Programming, Algorithms, Computational thinking, Problem solving	Programming, Algorithms, Computational thinking, Problem solving	Programming, Algorithms, World Wide Web	Graphics, World Wide Web, Basic ICT skills	Programming, Algorithms, Computational thinking, problem solving	Basic ICT skills, computer science, hardware
	Link to Careers:	Software development, Many STEM fields require programming knowledge	Software development, Many STEM fields require programming knowledge	Web development, social media	Graphics design	Software development, Many STEM fields require programming knowledge	Computer repair, engineering
	Assessment Type:						
9	*Topic(s):*	Programming essentials in Scratch – part 2	Introduction to Python Programming	Developing for the Web	Media – Vector Graphics	Mobile App Development	Computing Systems

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	Key Words(1 p/wk):	Scratch, Program, Sequence, Selection, Iteration, Sprite, Operator, Subroutine. Algorithm	Sequence, Selection, Iteration, Algorithm, Variable, String, Integer, Float	World Wide Web, HTML, CSS, Javascript, IDE, Search engine	Pixel, Vector, Bitmap, Graphics, Scaling,	World Wide Web, Application, Programming, Variable, Input, Output	Logical, Processor, Memory, Storage, Hardware, Software
	Link to Subject Context:	Programming, Algorithms, Computational thinking, Problem solving	Programming, Algorithms, Computational thinking, Problem solving	Programming, Algorithms, World Wide Web	Graphics, World Wide Web, Basic ICT skills	Programming, Algorithms, Computational thinking, problem solving	Basic ICT skills, computer science, hardware
	Link to Careers	Software development, Many STEM fields require programming knowledge	Software development, Many STEM fields require programming knowledge	Web development, social media	Graphics design	Software development, Many STEM fields require programming knowledge	Computer repair, engineering
	Assessment Type:						
10	*Topic(s):*	Programming part 1: Sequence (practical), Computer Systems (Theory)	Programming part 2: Selection (practical), Computer Systems(Theory)	Programming part 3: Iteration (practical), Computer Systems(Theory)	Programming Part 4: Subroutines (practical), Algorithms part 1(Theory)	Programming Part 5: Strings and Lists(practical), Data representations(Theory)	Algorithms Part 2 (Theory), Data Representations(Theory)
	Key Words(1 p/wk):	Sequence, Selection, Iteration,	Sequence, Selection, Iteration,	Sequence, Selection, Iteration,	Sequence, Selection, Iteration,	Sequence, Selection, Iteration,	Sequence, Selection, Iteration,

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		Algorithm, Hardware, Software, CPU, Storage, Memory	Algorithm, Specification, Logic, Assembly Programming	Algorithm, Logic, Assembly Programming	Algorithm, Computational thinking	Algorithm, Number bases, Binary, Hexadecimal	Algorithm, Bitmap, Vector, Data representation
	Link to context/Character:						
	Assessment Type:	1 X online , 1 X written	1 X online , 1 X written	1 X online , 1 X written	1 X online , 1 X written	1 X online , 1 X written	1 X online , 1 X written
11	*Topic(s):*	Programming part 6: Dictionaries and data files, Impacts of Technology	Programming part 6: Dictionaries and data files, Networks	Programming part 6: Dictionaries and data files, Security	Revision	Revision	
	Key Words(1 p/wk):						
	Link to context/Character:						
	Assessment Type:						

Key Questions:

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1. What is the overarching intent for your curriculum?

   The overall aim of the curriculum is to teach students how to use computers effectively and safely for a variety of tasks. The program has a mix of day to day digital literacy and ICT skills as well as the more subject specific computer science skills such as computational thinking and programming.

   The program is currently designed to take into account that students have had very little computing education until this point. Due to this each year group will do a similar introduction computing and E-safety unit. In future years this unit will be adapted for years 8 and 9 to take into account the lessons they received the previous years so that we can embed and build upon this knowledge.

   Years 7 to 9 have been planned to give a broad taste of the most important aspects of computing covering all aspects of they Key Stage curriculum and the 3 areas of computing (Digital Literacy, ICT and Computer Science). Year 9 has been planned to include some key stage 3 topics that are also integral to the Computer Science GCSE so that they will be better prepared if this is introduced for the 2021/22 academic year.

2. How does this curriculum build student's knowledge of the world around them both locally and nationally?

   The curriculum includes units of E-safety to ensure that students are aware of the risks of being online as well as how to reduce the risk and stay safe. Students will have the opportunity to use a wide range of software types many of which (Spreadsheets, Database, Word Process, PowerPoint) are now an integral part of almost any career path as more and more industries rely of technology for their day to day operations.

3. How is this curriculum designed to engage students and develop a passion for the subject?

   The curriculum covers many different aspects of computing with links to a great number of rewarding and exiting careers. As students use and will continue to use more and more technology in their day to day life this subject offers that a way to understand how the technology works, how to develop for this technology as well as how to use it effectively and safely.

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Many of the units allow the students to show their creative ability when finding solutions to problems or creating images and animations. Programming although in one way a rigid and logical discipline rewards students who think outside the box and can come up with creative solutions.

4. How does this curriculum cater for the needs of our students?

   The curriculum will provide them with the knowledge and skills to use technology safely and effectively. This will be required in almost any career path that they choose. The e-safety units allow them to keep themselves safe when online both now and in the future. By showing students how computers work as well as allowing them to work with a number of different software packages they will have the skills to quickly adapt to using new software packages in the future.

5. How is assessment used to improve learning?

   I will use low stakes quizzes Multiple choice to ascertain learning and recognise misconceptions and build a resilient attitude to learning. Each lesson will start with a do now focussed on retrieval. I will periodically test students of the knowledge organiser. Formative assessment will be used as an indicator for what needs to be taught before the summative assessment.

6. What skills will students develop that can be used in other subject areas and beyond their school life?

   Students will use a number of the software packages required for computing lessons in other subjects. This will allow them to use the packages more effectively in other subjects so that they can focus on completing the task rather than learning the software. This exposure to a number of software packages also gives students a working knowledge universal software rules such as laving and loading files, where to expect to find common tools, how to troubleshoot common issues which makes learning to use new software easier.

   Along side the digital literacy and ICT skills students also learn problem solving in a number of computer science lessons. Students are taught how to break down complex problems into smaller manageable chunks that can be solved one at a time and abstract away unnecessary information to focus their attention on what is required.

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7. How is learning planned to progressively develop pupil's knowledge and understanding over time?

   The curriculum is planned to first teach students the basic concepts of the subject (e.g. Computational thinking, Algorithms) and then apply them in a number of different ways in different units. Lessons will constantly make use of retrieval techniques especially at the start of the lesson. Many later units use the same basic concepts as earlier units but simply apply them in more complex ways such as flowcharts – visual programming – textual programming (Python) all utilise computational thinking techniques and algorithms.

   Although only 1 unit is specifically focussed on software use (Spreadsheets and databases) the students will use a variety of different software packages across the curriculum (e.g. presentation software, word processing software, web browsers, and programming IDE's). I also intent to utilise as number of web based platforms in place of traditional installed software packages to further build students resilience when having to use unfamiliar software packaged.

8. How is learning sequenced over time to ensure students retain knowledge and are more successful at recalling?

   The do now activity at the start of every lessons will be focussed on improving recall. The students will re-use software packages at different times in the course. A number of units build upon knowledge from previous units, in these cases parts of lessons will be focussed on more in depth retrieval of prior learning before introducing the new material. Assessments will include questions on previous topics.

9. How is this curriculum adapted to cater for the needs of students with different starting points?

   This version of the curriculum is designed for every student in years 7-9 to start from the very basics and assumed no prior knowledge. A number of the units require prior knowledge and will also include sections that focus on retrieval. During these parts of the lessons students who were not present of the original lesson can be introduced to the concept and provided scaffolded tasks to being them up to date.

10. How will you ensure teachers have the relevant knowledge, expertise and practical skills to deliver your curriculum effectively?

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Currently I am the only teacher specifically for computing. I will ensure that I undertake any CPD that is offered and track what is available from the STEM online CPD and the future learn CPD courses recommended by the NCCE. In addition I will continue to keep myself up to date with changes in computing education and also to overall industry to help me to anticipate future changes to the curriculum and be ready when they occur. I will ensure that I regularly use the software packages required for my lessons and ensure that I familiarise myself with any changes when the packages are updated.

I also plan to network with other Computing teacher both from my PGCE group and by being involved in the local Computing at school group once it is set up over the summer for Salford.

Additionally I will offer CPD sessions to any other staff teaching computing as required including non-specialist teachers from other departments who may only teach a few lessons of computing.