Computing Curriculum Principles

Our uniting 'sentence' is: "We provided students with a curriculum that developed a wide range of computing skills and developed an appreciation of the creative media sector, in order to contribute effectively in this fast and ever growing exciting digital sector.".

By the end of their education, a student of Computing at Dixons Unity Academy will:

- At the end of years 7 and 8 students will have been exposed to the following: programming in code and block based languages, E-Safety, presentation, spreadsheet, hardware and software, web design, data representation and control systems. Students will therefore become responsible, competent, confident and creative users of information and communication technology.

- At key stage 3 they will have experienced; understanding of key algorithms that reflect computational thinking; programming languages to solve computational problems; understand simple Boolean logic; understand the hardware and software components that make up computer systems; understand how instructions are stored and executed within a computer system; undertake creative projects that involve selecting, using, and combining multiple applications and understand a range of ways to use technology safely, respectfully, responsibly and securely.

- Those students studying Creative I Media and Digital Information Technology will develop a wide range of knowledge and skills to work in the creative media sector. This includes transferable skills such as research, planning and review and working with others.

- Within I Media, students will be able to understand pre-production skills used in the creative and digital media sector. They will develop their understanding of the client brief, time frames, deadlines and preparation techniques that form part of the planning and creation process. Students will also understand the purpose and properties of digital graphics, and know where and how they are used. Students will also be able to explore and understand the different properties, purposes and features of multipage websites, plan and create a multipage website and review the final website against a specific brief. Finally, they will understand the purpose and properties of interactive multimedia products, be able to plan and create an interactive multimedia product to a client's requirements and review it, identifying areas for improvement.

- Students studying the Digital Information Technology will development of key skills that prove your aptitude in digital information technology, such as project planning, designing and creating user interfaces and dashboards as a way to present and interpret data; process that underpins effective ways of working in digital information; technology, such as project planning, the iterative design process, cyber security; virtual teams, legal and ethical codes of conduct

To achieve a true understanding of Computing, topics have been intelligently sequenced based on the following rationale:

- At key stage 3 students are taught content that they can then embed in Key stage 4. They are therefore given a hands on approach in undertaking the above topics.

- At key stage 3, students work through learning diaries, which are designed for students to follow a sequence of lessons, feedback on what they have learnt and complete spacing and retrieval practice to ensure knowledge is embedded.

- At key stage 4 there is a practical approach to the units covered where students are taught how to use basic and advanced tools to create a variety of products to a high standard.

- Within the Creative I Media qualification, students complete four units of work, three of which involve completing a variety of products (a digital graphic, a multimedia product and a multipage website) and assessment is through assignment brief completion. The fourth unit is an external exam, which focuses on pre-production skills where students develop their understanding of the client brief, timeframes, deadlines and preparation techniques that form part of the creation and planning process. Similarly in Digital Information Technology, there are three components to study, two of which are assignment based and one is exam. Assignment tasks are set by the exam board and students will have a set time to complete these.

- There will be opportunities for retrieval practice and exploration activities to allow students to develop their skills in preparation for their formal assessment in the form of assignments. We also use spaced practice in developing the skills to the exam component and preparing for answering exam questions. These components use Level one / two Pass, Merit and Distinction grading criteria.

- Creative I Media and Digital Information Technology are vocational subjects, which therefore means through the majority of the time, they provides students with the opportunity to demonstrate their skills in assignment based tasks, rather than the traditional preparation for examinations as would be with GCSE subjects. Both courses do have one examination element, which is completed in year 11.

The Computing curriculum will address social disadvantage by addressing gaps in students' knowledge and skills":

- Students are provided with access to computing facilities and a range of software that they otherwise may not be able to access.

- When completing work at KS4, we have weekly after school intervention sessions where we can focus on key areas whilst giving one-to-one help.

- We ensure that intervention is proactive and data driven, on a regular basis staff address the gaps identified from in-class or cycle assessment data in order to offer provision to eradicate these differences. We use intervention folders in classrooms, which are used on a daily basis, which identifies the disadvantaged students (and SEND / PP) and then where a weekly plan is used to ensure intervention is taking place to help students progress.

- Revision guides are provided for students to use. We also use previous exam questions as spacing and retrieval practice in Learn Nows and as homeworks.

- In regards to KS3, students are provided with learning diaries for each area taught and spacing and retrieval practice of homework and DIRT feedback is completed in these diaries.

We fully believe that Computing can contribute to the personal development of students at Dixons Unity Academy:

- In KS3 the project completed on e-safety provides students with the opportunity to focus on how to stay safe online.

- The completion of work in the units studied in Creative I Media and Digital Information Technology encourage independent working in completing their assignments, creativity in the planning and design of their products (e.g. multipage website / digital graphic) and awareness of the digital media sector.

- Studying Creative I Media and Digital Information Technology equips students with a range of creative media skills and provides the opportunities to develop transferable skills such as research, planning and reviewing what they have completed.

Our belief is that homework should be interleaved revision of powerful knowledge that has been modelled and taught in lessons. This knowledge is recalled and applied through a range of low stakes quizzing and practice.

Opportunities are built in to make links to the world of work to enhance the careers, advice, and guidance that students are exposed to:

- Digital Media plays an important part in many areas of our everyday lives and is an important part of the UK economy. There is a demand from employers for an increasingly skilled and technically literate workforce as more and more media products are produced digitally. Creative I Media and Digital Information Technology provide students with specific and transferable skills and a solid foundation in understanding and applying this subject.

- KS4 students are provided with essential knowledge, transferable skills and tools to improve their learning in other subjects with the aims of enhancing their employability when they leave education, contributing to their personal development and future economic well-being.

- KS4 students will be able to see how completing this course develops their skills to focus on possible future careers such as a games designer, graphic designers and web development.

- Completing this course can also provide students with the opportunity to further their education into A Levels or apprenticeships.

- Every week students studying Computing in all year groups are provided with a learn now activity that focuses on a recent news article, enabling students to have that link to current events that are happening within the Digital Media Sector.

A true love of Computing involves learning about various cultural domains. We teach beyond the specification requirements, but do ensure students are well prepared to be successful in GCSE examinations:

- At key stage 3, students learn many IT skills (e.g. spreadsheets and presentations) which can be transferred into many other subjects. These practical transferable skills students master such as self-reflection, communication, teamwork and problem solving will also support their progress in the present and the future.

- Creative I Media and Digital Information Technology provides students with the opportunities to develop useful transferable skills such as research, planning, and review, working with others and communicating creative concepts effectively.

- At key stage 4, students will have the opportunity to learn about how the changes in working practices due to the use of ICT in creative media and Digital Information Technology have impacted upon the environment e.g. fewer carbon emissions due to more online/remote working and therefore less travel and environmental issues connected to the production, and disposal of ICT resources.

- At key stage 4, students will also explore the effect on natural resources in the creation and of ICT systems used in creative media and Digital Information Technology including the environmental impact of digital devices and their use.

Curriculum Overview

All children are entitled to a curriculum and to the powerful knowledge which will open doors and maximise their life chances. Below is a high-level overview of the critical knowledge children will learn in this subject, at each key-stage from Year 7 through to Year 11, to equip students with the cultural capital they need to succeed in life. Our powerful, knowledge-rich curriculum teaches both **substantive knowledge** (facts, knowing that something is the case; what we think about) and **procedural knowledge** (skills and processes; knowing how to do something; what we think with). There are no skills without bodies of knowledge to underpin them. The curriculum is planned vertically and horizontally giving thought to the optimum knowledge sequence for building secure schema.

		Cycle 1	Cycle 2	Cycle 3
YEAR 7	**New learning**	ICT skills and E-Safety	Scratch and spreadsheets	Hardware and software, Interactive presentations
	Revisited learning	Continually revisit IT skills e.g. saving documents	Continually revisit IT skills e.g. saving documents	Continually revisit IT skills e.g. saving documents
	Additional information	Students should be given passwords for PC and Email	Cycle assessment to review all that has been covered	Cycle assessment to review all that has been covered
YEAR 8	**New learning**	Databases	Python and Data representation	Computational thinking and HTML
	Revisited learning	ICT skills - ensure students revisit file creation, saving documents, naming documents etc.	Scratch programming as an introduction to Python	Continually reviewing IT skills
	Additional information	Review of IT skills important for future assessment for options in year 9		
YEAR 9	**New learning**	Digital Information Technology - Component one LAA	Digital Information Technology - Component One LAB	Digital Information Technology - Component One LAC
	Revisited learning	Adding in reminders of file structure and saving documents	Practice assessment for LAA and LAB	Practice assessment for LAC
	Additional information	No official assessment in Yr9 - practices completed		
YEAR 10	**New learning**	Start of teaching for Component Two	Teaching of component two continued	Complete teaching of component two and introduce component three
	Revisited learning	Sept - Oct: review of component one LAA before assessment	Revisit file and folder structure	Revision of component two including practice assessment
	Additional information	Official assessment taken in assessment window: October to December		Plan for Component two in Year 11 October assessment window
YEAR 11	**New learning**	R082 LO4	R085 teaching in preparation for assessment	R085 completion
	Revisited learning	Assessment completed of R082 LO1, LO2, LO3 also start to review R081 for mocks	R081 revision ready for January exam	R081 revisited in preparation for exam re-sit in May
	Additional information	Assessment for R082 completed this cycle	R085 assessment completion after Jan exam between Jan and April	Assessment completed for R085 for 15th May

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	**Induction**							**Assessment Weeks**					
	Increase personal security through recognising and creating strong and memorable passwords	To identify the purpose and usage of different types of Microsoft applications	To identify the purpose and usage of Microsoft PowerPoint	To identify the purpose and usage of Microsoft Excel	To examine the purpose of having sensible file and folder structures	Understand the different ways we use the internet and how to search the internet	To examine the purpose of using email and identify key features of email applications	Assessment to check understanding	Learning about the dangers of the internet and how it is important to know about strangers online	Learning to stay safe when using social networking sites and using chat rooms	Learning about cyberbullying and the impact it could have on individuals	Learning about protecting yourself and your computer from the dangers online	Learning to create a Cyberbullying comic that is suitable for year 6 students
Cycle 2							**Assessment Weeks**						
	Careers link (ADO)	Scratch: Able to programme to move objects - Create your own sequence of instructions Use blocks efficiently	Change sprites, background and sound	Creating and using Co-ordinates Experiment by modifying "sprites" Add coding to the sprites to move	Using variables to set up a game	Setting up a game Create the sprites and background for the game Completion of the game, students to review each others games and evaluate	Cycle Assessment	Spread sheets: Create a simple model using formulae and make use of basic formatting features	How to write a formula to calculate the total, average, lowest and highest from a range of numbers	Create a variety of different, suitable, correctly labelled charts	How to pick up a value from another sheet using a cell reference	Why it is important to plan things before you create them on the computer	Careers link (ADO)
Cycle 3									**Assessment Weeks**				
	Hardware and software Learn about different parts of a computer and how they work	Learn what the role and function of software is	Learn what input and output devices are	Learn what storage devices are and how they work	Learn about different types of networks	Careers link (ADO)	To understand the importance of planning - To begin planning your endangered animals	To examine which images would be appropriate for an endangered animals interactive presentation. To begin adding images	Cycle Assessment	To understand how text should be presented in an interactive presentation To begin adding text to your	To learn how to add transitions, animations and effects to our interactive presentation	To evaluate your interactive presentation to find areas that could be enhanced	

interactive presentation

to your interactive presentation

interactive presentation

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	Induction					**Assessment Weeks**							
Cycle 1	Ensure have passwords, review of log ins and E-safety	IT skills review over Microsoft Word and PowerPoint	IT skills review of sensible file and folder structures	IT skills review use of internet and how to search on the internet	IT skills, review of email and email structures	Careers link (ADO)	Cycle Assessment	Understand the purpose of a database, and basic database terms	Learn validation rules which validate data in a database	Creating queries and generating reports from the queries	To sort data in a given database to find records	Review of key aspects of databases including creating own database	Complete creating own database
						Assessment Weeks							
Cycle 2	Python: Understand and use practical programming skills. Set variables. Use built in procedures	Understand that computers need precise instructions. Type and run a Python programme successfully	Use built in procedures. Use If statements in a program. Set variables. Find and correct simple design problems in a program	Students creating a quiz in Python - selecting choice of questions and code needed to show response to right / wrong answers	Students creating a quiz in Python - selecting choice of questions and code needed to show response to right / wrong answers	Students ensuring all aspects of their quiz are complete	Students complete evaluation of each others quizzes after playing them	Data representation Learning to count in binary and convert between decimal and binary	Learning how binary is used to represent numbers, converting the numbers accurately	Learning the process of binary addition, do simple addition and propagated carries correctly	Learning how bitmaps are used to represent images with binary – convert a black and white image to binary	Learning how bitmaps are used to represent images with binary – convert an indexed colour image to binary	Careers (ADO)
								Assessment Weeks					
Cycle 3	Computational thinking Learning about the different control system used in everyday life	Learning how to recognise different flowchart symbols and how to put them together	Learning how to create a flowchart to show the Comp. Thinking e.g. how a toaster works	Learning how to recognise and fix mistakes in the flow diagrams	HTML: You will be learning about the structure of a web page. Use the correct tags in the correct places, and extend your work with additional	You will be learning how to add text and bullet lists using HTML tags. Create unordered lists that have the correct opening tags and show	You will be learning how to create tables using HTML tags. Alter and extend existing tables by adding extra columns or rows	Careers (ADO)	Cycle Assessment	You will be learning how to create hyperlinks using HTML tags, Create 3 working hyperlinks to different webpages using HTML tags	You will be learning how to design, create and link web pages for an entire web site using HTML tags. Create a website using HTML with at least	Create a website using CSS and HTML with multiple pages linked together with working hyperlinks	

| | | | | headings and lists. | correctly in a web browser | | | | | three pages linked together with working hyperlinks | |

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Cycle 1	**Induction**								**Assessment Weeks**				
	Comp.One A1 User interfaces	A1 Continue User Interfaces	A1 complete user interfaces A2 Audience needs	A2 Audience needs	A2 Audience needs A3 Design Principles	A3 Design Principles	A3 Design Principles	A4 Designing and efficient user interface	A4 Designing and efficient user interface	A4 Designing and efficient user interface	Introduce practice assignment requirements Research time on LAA and prepare notes	Research time on LAA and prepare notes	LAB B1 Project planning techniques
Cycle 2							**Assessment Weeks**						
	LAB B1 Project planning techniques	LAB B1 Project Planning techniques	B2 Creating a project proposal and plan	B2 Creating a project proposal and plan	B2 Creating a project proposal and plan	Revision for cycle assessment	Cycle assessment	B3 creating an initial design	B3 creating an initial design (Also DIRT of assessment)	B3 creating an initial design	B4 Developing a user interface	B4 Developing a user interface	B4 Developing a user interface
Cycle 3								**Assessment Weeks**					
	Research time on LAB and prepare notes	Research time on LAB and prepare notes	Complete practice assignment tasks 1, 2 and 3	Complete practice assignment tasks 1, 2 and 3	Complete practice assignment tasks 1, 2 and 3	LAC C1 Review	LAC C1 Review	LAC C1 Review	Cycle assessment	Complete practice assignment of task 4	Complete practice assignment of task 4	DIRT of cycle assessment DIRT of practice PSA	Resub. to make improvements

Y10 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	**Induction**						**Assessment Weeks**						
	Comp. One Review of LAA: User interfaces, audience needs, design principles	Review of LAA: User interfaces, audience needs, design principles	Review of LAB: Project planning and creating a project proposal	Review of LAB: Project planning and creating a project proposal	Review of LAC: C1 Review Intro. to the assign. and expectations	Cycle assess. Move onto Pearson Set Assess.	Pearson set assess.	Pearson set assess	Pearson set assess	Pearson set assess	Start of comp two. Collecting, presenting and interpreting data LAA: A1 Charc. of data and info.	Resub. for assess.	Comp. Two LAA: A1 Charcter. of data and info.
Cycle 2							**Assessment Weeks**						
	Comp. Two LAA: A1 Charcter. of data and info.	A2: Representing information	A3 Ensuring data is suitable for processing	A4 Data collection	A5: Quality of information and its impact on decision making	A6 Sectors that use data modelling	A7 Threats to individuals	Intro to practice assess. Time to research and make notes	Complete practice assess. Task one.	LAB: Data processing methods Data manipulation methods	B1 Advanced data manip. methods	B1 Advanced data manip. methods	B1 Other processing methods
Cycle 3								**Assessment Weeks**					
	B2 Producing a dashboard data summaries	B2 Presentation methods	B2 Presentation features Research of next task of assign. make notes	Complete practice assess. Task two	LAC: C1 Drawing conclusions based on findings of data	C2: How presentation affects understand.	Revision of final task, students study the dash-board created	Complete practice assess. Students complete task 3	Revision of key points	Cycle assessment	DIRT of practice assess. Resub. of practice assess.	DIRT of cycle assess. Ensure resub. complete	Final review of key points of comp two

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	**Induction**							**Assessment Weeks**					
	R082 completion	R082 completion	R082 completion (LO4)	R082 completion (LO4)	R085: LO1 Components and features of multipage websites	R085: LO1 Devices used to access the internet	R085: LO1 Internet connections	R081 revision Mood boards and mind maps, spider diagrams	R081 revision visualiseation diagrams and story boards, scripts	R081 revision file types and naming conventions and client require.	Mock Revision - Research and work plans and hardware and software	Mock Revision Health and safety and legislation	R081 revision of exam questions for Jan exam
Cycle 2								**Assessment Weeks**					
	Complete Jan exam R085: LO1 Review LO1 Assignment intro and completion of LO1	R085: LO1 Complete LO1	R085: LO2 Client requirem. Target audience and work plans	R085: LO2 Site maps and visualisation diagrams	R085: LO2 Test plans and legislations Assignment completion of LO2	R085: LO2 Complete assignment LO2	R085: LO3 Source and input assets	R085: LO3 Use a range of features of the software to create a multi page website	R085: LO3 Embed content, adding a form	R085: LO3 Create a navigation system and save and publish a website Assignment completion of LO3	R085: LO3: Complete assign. of LO3	R085: LO4 Identify client require. and judging success of a product	R085: LO4 Reviewing a website and identify improvement.
Cycle 3							**Assessment Weeks**						
	R085 completion: Complete LO4	R085 completion Resub	R085 completion Resub	R081 revision for resit	R081 revision for resit	R081 revision for resit	R081 revision for resit						