Curriculum Intent: Computing

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

- Be masters of technology, as it will play a pivotal part of their lives. They will understand how to use technology positively, responsibly and safely.
- Be creators and inquisitive users as our broad curriculum encompasses of Computer Science, Information Technology and Digital Literacy.
- Have the skills to contribute towards a developing technological society where advancements of technology plays a vital part of shaping the future

Our uniting Sentence is:

'The Computing department at Dixons Brooklands Academy, empowered students to become; enthusiastic, skilled, innovative and considerate users of technology and embedded skills to contribute effectively towards the development of a rapidly evolving technological society'

Vision

The core of 'Computing' is Computer science, digital literacy and information technology. Pupils learn the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create program systems and its content. Computing also ensures that pupils become digitally literate (able to use, express themselves and develop their ideas through, information and communication technology). This will be at a level that is suitable for the rapidly evolving technological world, workplace and further education.

Our curriculum covers a diverse range of computing concepts to provide students with abroad foundation. They will delve into topics such as programming languages, data structures, cyber security and emerging technologies. Through this exploration, students will gain a comprehensive understanding of the principles that underpin modern computing.

We believe that computational thinking is a fundamental skill for the digital age. Our curriculum emphasizes the development of computation thinking skills such as, decomposition, abstraction and algorithmic design.

In order to achieve a true understanding of CS, topics have been intelligently sequenced based on the following rationale:

- The Computing curriculum is continually building on prior learning whilst developing a wider and deeper understanding of key concepts and global issues. In early stages, we focus on E-Safety as well as digital literacy basic skills. Students will also build confidence in using a wide range of software.
- Students will arrive at KS3 with differing knowledge and experiences of computing. Therefore, it is important that the three major topics Computer Science, digital literacy and Information technology topics be developed at KS3 in order to build on the fundamentals learned from KS2.

- Year 7- Introduction to Computing, Project making, Data representation, Programming, Spreadsheets and Control technology.
- Year 8- Computer Crime and Security, Computer technology, Programming, Understanding Computers.
- Year 9 – Python programming, Data representation, User interface design, Networks and Project planning.
- Considerations have been made into what the key components are in KS3 that will be needed to develop future learning and optional courses delivered at KS4 and beyond.

Year 7 Computing

Long Term Plan 2023/2024

	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	Week 14	Week 15
Cycle 1	**W/C 28/08**	**W/C 4/09**	**W/C 11/09**	**W/C 18/09**	**W/C 25/09**	**W/C 02/10**	**W/C 09/10**	**W/C 16/10**	**W/C 06/11**	**W/C 13/11**	**W/C 20/11**	**W/C 27/11**	**W/C 04/12**	**W/C 11/12**	**W/C 18/12**
	Term 1 Training days 1								**Term 2**		*Data days 23/11 24/11*				*School Closes*
		<u>Introduction to Computing – Unit 1</u> Logging in and Folders	Office 365 Emails Teams	Word processing Touch type Keyboard shortcuts	Word processing Formatting Saving	Word processing Header footer Images Tools	E-safety Staying safe online Cyberbullying	Keeping your data safe Personal data	**<u>Adventure story</u>** Practise quiz PowerPoint basics	Development life cycle	Planning- PowerPoint tools Images	Implementation - Create Inserting text boxes and images	Implementation - Create Hyperlinks	Testing And reviewing Evaluate Self and Peer Review	Consolidation of knowledge and review
	W/C 8/01	**W/C 15/01**	**W/C22/01**	**W/C 29/01**	**W/C 05/02**	**W/C 19/02**	**W/C 26/02**	**W/C 04/03**	**W/C 11/03**	**W/C 18/03**					
Cycle 2	**Term 3**				***Training day 09/02***	**Term 4**		*Data/Planning Day 7th & 8th*							
	<u>Data Representation</u> Into to Binary and base number systems	Binary conversions to denary using 4 bit binary	Denary conversions to Binary using 4 bit binary	Binary addition using 4 bit binary	Hexadecimal conversions into binary and vice versa	**<u>Flowol</u>** Control technology Flow charts	Using inputs to control outputs Algorithms	Subroutines and Values	Variables Using inputs and outputs in flowcharts	Control systems and flow charts					
	W/C 08/04	**W/C 15/04**	**W/C 22/04**	**W/C 29/04**	**W/C 06/05**	**W/C 13/05**	**W/C 20/05**	**W/C 03/06**	**W/C 10/06**	**W/C 17/06**	**W/C 24/06**	**W/C 01/07**	**W/C 08/07**	**W/C15/07**	
	Term 5				*School closed 06/05*			**Term 6**						*Data/Planning Day 19*	
Cycle 3	**<u>Spy school</u>** Cell referencing Excel basics	Operators of formula	Functions of formula Formula vs Functions	Applying formatting to a spreadsheet	Sorting and Filtering	Create a range of charts and format them	**<u>Kodu</u>** How programs work	Creating landscape	Navigation and pathing	Clones and creatable	Pages and selection	Developing project	Developing project	Consolidation of knowledge and review	

Year 8 Computing

Long Term Plan 2023/2024

	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	Week 14	Week 15
Cycle 1	**W/C 28/08**	**W/C 4/09**	**W/C 11/09**	**W/C 18/09**	**W/C 25/09**	**W/C 2/10**	**W/C 09/10**	**W/C 16/10**	**W/C 06/11**	**W/C 13/11**	**W/C 20/11**	**W/C 27/11**	**W/C 04/12**	**W/C 11/12**	**W/C 18/12**
	Term 1 Training days 1								**Term 2**		*Data Days 23/11 24/11*				*School Closes*
		Introduction to Computing – Unit 1 Logging in and Folders	Office 365 Emails Teams	Word processing Touch type Keyboard shortcuts	Word processing Formatting Saving	Word processing Header footer Images Tools	E-safety Staying safe online Cyberbullying	Keeping your data safe Personal data	**Computer Technology** Hardware Vs Software Input- Output and Storage Devices	Software Application Utility Operating	Timeline of History	The Internet WWW Tim Burners Lees	Cloud Computing	Consolidation of knowledge	Consolidation of knowledge and review
	W/C 8/01	**W/C 15/01**	**W/C22/01**	**W/C 29/01**	**W/C 05/02**	**W/C 19/02**	**W/C 26/02**	**W/C 04/03**	**W/C 11/03**	**W/C 18/03**					
Cycle 2	**Term 3**				*Training day 09/02*	**Term 4**		*Data/Planning Day 7th & 8th*							
	Computer Crime and Security Email Scams Phishing	Hacking	Protecting personal data	Copyright	Health and Safety	**Spreadsheet Modelling** Computer Modelling	Creating a Financial model	'What if scenarios'	Conditional formatting	Macros and charts					
	W/C 08/04	**W/C 15/04**	**W/C 22/04**	**W/C 29/04**	**W/C 06/05**	**W/C 13/05**	**W/C 20/05**	**W/C 03/6**	**W/C 10/6**	**W/C 17/6**	**W/C 24/6**	**W/C 01/07**	**W/C 08/07**	**W/C 15/07**	
	Term 5		*School closed 1/05*					**Term 6**					*Data/Planning Day 19 &20th*	*Data/Planning Day 19*	
Cycle 3	**Programming with Python** Strings and variables	Numbers and arithmetic	Selection	Writing algorithms with selection	Loops	New Technology and Convergence	Consolidation of knowledge and review	**Understanding Computers** Elements of a computer	The CPU	Understanding Binary	Binary addition using 4 bit binary	Artificial Intelligence	Consolidation of knowledge		

Year 9 Computing

Long Term Plan 2023/2024

	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	Week 14	Week 15
Cycle 1	W/C 28/08	W/C 4/09	W/C 11/09	W/C 18/09	W/C 25/09	W/C 02/10	W/C 09/10	W/C 16/10	W/C 06/11	W/C 13/11	W/C 20/11	W/C 27/11	W/C 04/12	W/C 11/12	W/C 18/12
	Term 1 Training days 1								**Term 2**		*Data Days 23/11 24/11*				*School Closes 1*
		Introduction to Computing – Unit 1 Logging in and Folders	Office 365 Emails Teams	Word processing Touch type Keyboard shortcuts	Word processing Formatting Saving	Word processing Header footer Images Tools	E-safety Staying safe online Cyberbullying	Keeping your data safe Personal data	**Python Next steps** Python programming using flowcharts	User Interface	**Selection** - game	Writing own programs using selection- game	Debugging	Consolidation of knowledge	Consolidation of knowledge and review
	W/C 8/01	W/C 15/01	W/C 22/01	W/C 29/01	W/C 05/02	W/C 19/02	W/C 26/02	W/C 04/03	W/C 11/03	W/C 18/03					
Cycle 2	**Term 3**				*Training day 09/02*	**Term 4**		*Data/Planning Day 7th & 8th*							
	Data Representation Binary to denary 8 bit	Denary to Binary 8 bit	Hexadecimal	Binary addition 8 bit and overflow	Image	Sound	**User Interface Design** User Interfaces	Factors and influences	Audience needs	Design principles					
	W/C 08/04	W/C 15/04	W/C 22/04	W/C 29/04	W/C 06/05	W/C 13/05	W/C 20/05	W/C 03/06	W/C 10/06	W/C 17/06	W/C 24/07	W/C 01/07	W/C 08/07	W/C 15/07	
	Term 5				*School closed 06/05*			**Term 6**						*Data/Planning Day 19*	
Cycle 3	**Networks** Topologies	Hardware of a network	Network threats	Cloud networking	File types	Consolidation of knowledge	**Project Planning** Project planning techniques	Creating a project plan	Initial design	Developing a user interface	Refining and reviewing a user interface	Refining and reviewing a user interface	Consolidation of knowledge		

Computer Science – Year 10

Long Term Plan 2023/2024

	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	Week 14	Week 15
Cycle 1	**W/C 28/08**	**W/C 4/09**	**W/C 11/09**	**W/C 18/09**	**W/C 25/09**	**W/C 02/10**	**W/C 09/10**	**W/C 16/10**	**W/C 06/11**	**W/C 13/11**	**W/C 20/11**	**W/C 27/11**	**W/C 04/12**	**W/C 11/12**	**W/C 18/12**
	Term 1 **Training days 1**								**Term 2**		*Data days 23/11 24/11*				*School Closes*
		Data Representation Data storage units Binary	Binary arithmetic Binary shift	Hexadecimal	Characters	ASCII and Extended ASCII	Images	Sound Compression	**System Architecture** Architecture and Von Nuemann	CPU Components	Performance of the CPU	Embedded systems	Types of secondary storage Virtual memory Characteristics of SS	Review of learning	
	W/C 8/01	**W/C 15/01**	**W/C22/01**	**W/C 29/01**	**W/C 05/02**	**W/C 19/02**	**W/C 26/02**	**W/C 04/03**	**W/C 11/03**	**W/C 18/03**					
Cycle 2	**Term 3**				***Training day 09/02***	**Term 4**		*Data/Planning Day 7th & 8th*							
	Networks Types of networks IP Adresses and DNS MAC Addresses	Topologies Networking hardware	Virtual networks Wireless networking Packet Switching	Encryption Client server and peer to peer	*Transmission media*	Network performance	Standards protocols and layers	**Network Security and Systems software** Identifying and Analysing forms of attack	Prevention	Operating Software & Utility Software					
	W/C 08/04	**W/C 15/04**	**W/C 22/04**	**W/C 29/04**	**W/C 06/05**	**W/C 13/05**	**W/C 20/05**	**W/C 03/06**	**W/C 10/06**	**W/C 17/06**	**W/C 24/06**	**W/C 01/07**	**W/C 08/07**	**W/C15/07**	
	Term 5				*School closed 06/05*			**Term 6**						*Data/Planning Day 19*	
Cycle 3	**Programming** Programming fundamentals	Sequence and Selection	Iteration	Arrays	Procedures and Functions	Records and Files SQL	**Algorithms** Computational thinking	Searching Algorithms	Sorting Algorithms	Developing Algorithms – flowcharts	Developing Algorithms - Pseudocode	Developing Algorithms - Pseudocode	**Assessment**		

Computer Science – Year 11

Long Term Plan 2023/2024

	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	Week 14	Week 15
Cycle 1	**W/C 28/08**	**W/C 4/09**	**W/C 11/09**	**W/C 18/09**	**W/C 25/09**	**W/C 02/10**	**W/C 09/10**	**W/C 16/10**	**W/C 06/11**	**W/C 13/11**	**W/C 20/11**	**W/C 27/11**	**W/C 04/12**	**W/C 11/12**	**W/C 18/12**
	Term 1 Training days 1								**Term 2**		*Data days 23/11 24/11*				*School Closes*
		Algorithms Computational thinking	**Searching algorithms**	Sorting Algorithms Bubble	Sorting Algorithms Insertion	Sorting Algorithms Merge	**Developing Flowcharts**	Developing Pseudocode	**Programming** Programming fundamentals	Sequence and Selection	Iteration	Arrays	Procedure and functions	Records and files	**SQL**
	W/C 8/01	**W/C 15/01**	**W/C22/01**	**W/C 29/01**	**W/C 05/02**	**W/C 19/02**	**W/C 26/02**	**W/C 04/03**	**W/C 11/03**	**W/C 18/03**					
Cycle 2	**Term 3 School closed 2/1**							**Term 4**	*Data/Planning Day 9th & 10th*						
	Logic and Language Logic diagrams and truth tables	Boolean Logic	Defensive Design	Errors and testing	Translators and |Facilities	*IDE*	Python statements	Revision Paper 1 – past paper	Revision Paper 1 – past paper	Revision Paper 1 – past paper					
	W/C 08/04	**W/C 15/04**	**W/C 22/04**	**W/C 29/04**	**W/C 06/05**	**W/C 13/05**	**W/C 20/05**	**W/C 03/06**	**W/C 10/06**	**W/C 17/06**	**W/C 24/06**	**W/C 01/07**	**W/C 08/07**	**W/C15/07**	
	Term 5				*School closed 06/05*			**Term 6**						*Data/Planning Day 19*	
Cycle 3	Revision Paper 2 – past paper	Revision Paper 2 – past paper	Revision Paper 2 – past paper	Revision Core Knowledge	Revision Core Knowledge	Exam Window	Exam Window								

BTEC DIT – Year 10

Long Term Plan 2023/2024

	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	Week 14	Week 15
	W/C 28/08	**W/C 4/09**	**W/C 11/09**	**W/C 18/09**	**W/C 25/09**	**W/C 02/10**	**W/C 09/10**	**W/C 16/10**	**W/C 06/11**	**W/C 13/11**	**W/C 20/11**	**W/C 27/11**	**W/C 04/12**	**W/C 11/12**	**W/C 18/12**
	Term 1 Training days 1								**Term 2**		*Data days 23/11 24/11*				*School Closes*
	<u>Component 1</u>:Exploring User Interface Design Principles and Project Planning Techniques	Investigate user interface design for individuals and organisations	Factors and influences	Audience needs Design principles	Design psychology Designing effective user interfaces	Project planning techniques Creating project plans	Initial designs Developing a user interface	**<u>PSA</u>**	Assessment component 1	Assessment component 1	Assessment component 1	Assessment component 1	Assessment component 1	Assessment component 1	Assessment component 1
	W/C 8/01	**W/C 15/01**	**W/C22/01**	**W/C 29/01**	**W/C 05/02**	**W/C 19/02**	**W/C 26/02**	**W/C 04/03**	**W/C 11/03**	**W/C 18/03**					
Cycle 2	**Term 3**				***Training day 09/02***	**Term 4**		*Data/Planning Day 7th & 8th*							
	<u>Component 2:</u> Collecting, Presenting and Interpreting Data	Characteristics of data and information	Representing information Ensuring data is suitable	Data Collection	*Quality of information and impact*	Sectors that use data modelling	Threats to individuals	**<u>PSA</u>**	Assessment Component 2	Assessment Component 2					
	W/C 08/04	**W/C 15/04**	**W/C 22/04**	**W/C 29/04**	**W/C 06/05**	**W/C 13/05**	**W/C 20/05**	**W/C 03/06**	**W/C 10/06**	**W/C 17/06**	**W/C 24/06**	**W/C 01/07**	**W/C 08/07**	**W/C15/07**	
	Term 5				*School closed 06/05*			**Term 6**						*Data/Planning Day 19*	
Cycle 3	Assessment Component 2	Assessment Component 2	Assessment Component 2	Assessment Component 2	**Component 3- Effective Digital Working Practice** Unit A- Modern Technology Cloud storage and computing	Using cloud technologies	Modern teams working	Inclusivity and accessibility	Impacts of modern technologies	Communication technologies	**Unit B - Cyber Security** System attacks and external threats	Internal threats and impacts of breaches	User restrictions and finding weaknesses	Policy backup and data recovery	

BTEC DIT – Year 11

Long Term Plan 2023/2024

	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	Week 14	Week 15
Cycle 1	**W/C 28/08**	**W/C 4/09**	**W/C 11/09**	**W/C 18/09**	**W/C 25/09**	**W/C 02/10**	**W/C 09/10**	**W/C 16/10**	**W/C 06/11**	**W/C 13/11**	**W/C 20/11**	**W/C 27/11**	**W/C 04/12**	**W/C 11/12**	**W/C 18/12**
	Term 1 Training days 1								**Term 2**		*Data days 23/11 24/11*				*School Closes*
	Unit C - Implications of digital Systems Sharing of data	Environmental issues of ICT	Equal Access in ICT	User policies	**Data Protection**	Communication technologies	Unit B - Cyber Security System attacks and external threats	Internal threats and impacts of breaches	User restrictions and finding weaknesses	Policy backup and data recovery	*Criminal use of ICT and how to combat it*	Unit D - Project Planning and communication Data flow diagrams	Flowcharts	System diagrams	ICT tables and written information
	W/C 8/01	**W/C 15/01**	**W/C22/01**	**W/C 29/01**	**W/C 05/02**	**W/C 19/02**	**W/C 26/02**	**W/C 04/03**	**W/C 11/03**	**W/C 18/03**					
Cycle 2	**Term 3**				***Training day 09/02***	**Term 4**		*Data/Planning Day 7th & 8th*							
	Component 3- Effective Digital Working Practice Unit A- Modern Technology Cloud storage and computing	Using cloud technologies	Modern teams working	Inclusivity and accessibility	*EXAM WINDOW*										
	W/C 08/04	**W/C 15/04**	**W/C 22/04**	**W/C 29/04**	**W/C 06/05**	**W/C 13/05**	**W/C 20/05**	**W/C 03/06**	**W/C 10/06**	**W/C 17/06**	**W/C 24/06**	**W/C 01/07**	**W/C 08/07**	**W/C15/07**	
	Term 5				*School closed 06/05*			**Term 6**						*Data/Planning Day 19*	
Cycle 3															