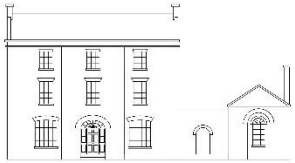
Aspris Children's Services

Curriculum Long Term Plan
ICT/Computing



	TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
YEAR 5/6 A	**Systems and searching** Recognising IT systems around us and how they allow us to search the internet.	**Video production** Planning, capturing, and editing video to produce a short film.	**Flat-file databases** Using a database to order data and create charts to answer questions.	**Communication and collaboration** Identifying and exploring how data is transferred and information is shared online.	**Webpage creation** Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	**Introduction to spreadsheets** Answering questions by using spreadsheets to organise and calculate data.
YEAR 5/6 B	**Selection in physical computing** Exploring conditions and selection using a programmable microcontroller.	**Vector drawing** Creating images in a drawing program by using layers and groups of objects.	**Selection in quizzes** Exploring selection in programming to design and code an interactive quiz.	**Variables in games** Exploring variables when designing and coding a game.	**3D modelling** Planning, developing, and evaluating 3D computer models of physical objects.	**Sensing** Designing and coding a project that captures inputs from a physical device.
YEAR 7/8 A	**Impact of technology: collaborating online respectfully** Identifying how to use online collaboration tools respectfully. An introduction to the computing lab.	**Networks: from semaphores to the internet** Recognising networking hardware and explaining how networking components are used for communication.	**Using media: gaining support for a cause** Creating a digital product for a real-world cause.	**Developing for the web** Using HTML and CSS to create webpages.	**Representations: from clay to silicon** Representing numbers and text using binary digits.	**Media: vector graphics** Creating vector graphics through objects, layering, and path manipulation.
YEAR 7/8 B	**Programming essentials in Scratch: part I** Applying the programming constructs of sequence, selection, and iteration in Scratch.	**Programming essentials in Scratch: part II** Using subroutines to decompose a problem that incorporates lists in Scratch.	**Modelling data: spreadsheets** Sorting and filtering data and using formulas and functions in spreadsheet software.	**Mobile app development** Using event-driven programming to create an online gaming app.	**Computing systems** Exploring the fundamental elements that make up a computer system.	**Introduction to Python programming** Applying the programming constructs of sequence, selection, and iteration in Python.

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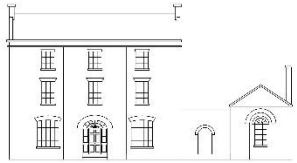

	TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
YEAR 9	**Python programming with sequences of data** Manipulating strings and lists. Creating a programming project.	**Media: animations** Creating 3D animations through object manipulation, and tweaking and adjusting lighting and camera angles.	**Data science** Using data to investigate problems and make real-world changes.	**Representations: going audiovisual** Representing images and sound using binary digits.	**Cybersecurity** Identifying how users and organisations can protect themselves from cyberattacks.	**Physical computing** Sensing and controlling with the micro:bit.

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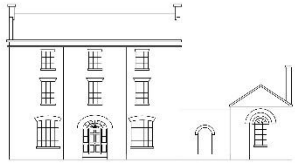

	TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
YEAR 10 Option Computer Science	**Programming part 1:** **Sequence** (10 lessons) Determine the need for translators. Use sequence, variables, and input in Python. Design programs using a flowchart. **Computer systems** (13 lessons) Describe the role of the CPU. Explain the processes of the fetch-decode-execute cycle. Determine the role of main memory and secondary storage. Construct truth tables for three input logic circuits. Write a program using assembly language (LMC).	**Programming part 2: Selection** (12 lessons) Use randomisation in programs. Work with arithmetic and logical expressions. Use selection and nested selection in Python.	**Programming part 3:** **Iteration** (12 lessons) Use a **while** loop and a **for** loop in Python. Perform validation checks on data entry. Design programs using pseudocode.)# **Algorithms part 1** (3 lessons) Define the terms 'decomposition', 'abstraction', and 'algorithmic thinking'. Use trace tables.	**Programming part 4: Subroutines** (14 lessons) Explain the differences between a procedure and a function. Describe scope of variables. Use functions and procedures as part of the structured approach to programming. Test a program for robustness. **Algorithms part 2** (9 lessons) Describe a linear and binary search. Explain the key algorithms for a bubble, merge, and insertion sort.	**Programming part 5: Strings and lists** (22 lessons) Define the term 'graphical user interface' (GUI). Perform string handling operations. Describe the differences between a list and an array. Manipulate a list. Work with 2D lists. .	**Data representations** (10 lessons) Explain how numbers, text, images, and sound are represented using binary digits. Perform operations on binary digits. Convert between units of measurement

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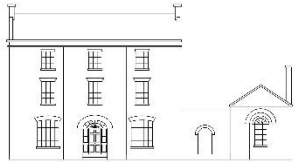

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YEAR 11 Option Computer Science	**Programming part 6:** **Dictionaries and data files** (24 lessons) Use a record and a dictionary data structure. Access and modify external data files. Complete a complex programming project. **Impacts of technology** (8 lessons) Determine the ethical, legal, environmental, and cultural impacts of technology	**Networks** (8 lessons) Describe network components. Explain connectivity and distinguish between the various types. Describe the four layers of the TCP/IP model. Protect a network from threats	**Security** (7 lessons) Describe the various ways that users and organisations can be affected by cyberattacks. Demonstrate how organisations can prevent cyberattacks.	**Databases and SQL** (5 lessons) Describe a database and list its key terms. Determine the difference between a flat file and a relational database. Use structured query language (SQL) to retrieve and update data in a database. Exam preparation and revision	OOP (5 lessons) Define and apply the principles of object-oriented programming. Create a class in Python and use its attributes and methods Exam preparation and revision	X

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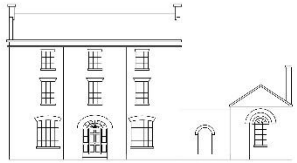

	TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
YEAR 12/13 A/YEAR 10 Core Functional ICT	**Online safety** (10 lessons) Recognise ways to build a positive online reputation. Discuss the ethics surrounding big data. Identify fake news and explain why it exists. Describe the laws governing online content. Recognise illegal content and describe how to report it.		**IT and the world of work** (6 lessons) Examine modern technology tools that assist with inclusivity and accessibility. Evaluate effective online communication and collaboration. Create a positive work environment for remote working	**Media** (7 lessons) Create pre-production planning materials. Create raster and vector graphics. Utilise the software required for digital video creation. Create a multi-page website using open source tools	**Spreadsheets** (6 lessons) Use functions, formulas, and formatting in a spreadsheet. Develop a spreadsheet for a given scenario	**IT project management** (10 lessons) Identify why project management is important and recognise the common tools used. Manage a project for a given scenario
YEAR 12/13 B/Year 11 Core Functional ICT						