



# BEIS YAAKOV JEWISH HIGH SCHOOL ACADEMY

## Computing/ Computer Science Programme of Study 2024-25

### Our Five-Year Curriculum

The Computing curriculum at BYJHS aims **to enable our students to become digital citizens** – individuals who are able **to develop the mindset of a computer scientist, using computational thinking and digital creativity as well as possessing good quality IT and digital literacy skills to enable them to engage positively within the modern workplace.** We want our students to develop the foundations **to enable them to be discerning, life-long learners** in a fast-moving landscape.

The Computing curriculum has been designed to ensure learners have sufficient **knowledge to stay safe online, understanding how computers work and be confident when using them.** Students develop into **resilient learners and critical thinkers who can apply their skills to any challenging situation and effectively solve problems and recover from mistakes.**

### COMPUTING CURRICULUM AREA STAFF 24- 25

Mrs Y Sasson

Should you require more information about this subject area please contact:

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## CURRICULUM MAP

SUBJECT	YEAR GROUP	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
Computing	Y7	<p>Topic 1: Digital Literacy – Introduction to online safety</p> <p>Topic 2: Clear Messaging in Digital Media</p>	Topic 3: Networks – From Semaphores to the internet	<p>TOPIC 3: Networks – From semaphores to the Internet Continued</p> <p>Topic 4: Scratch 1</p>	Topic 4: Scratch 1	Topic 5: Modelling Data Using Spreadsheets	Topic 6: Scratch 2
Computing	Y8	Topic 1: Layers of Computing Systems	Topic 2: Developing for the Web	Topic 3: Representations – From clay to Silicon	Topic 4: Introduction to Python Programming	Topic 5: Mobile App Development	Topic 6: Vector Graphics
Computing	Y9	Topic 1: Python Programming with sequencing of data	Topic 2: Media Animations	Topic 3: Data Science	Topic 4: Representations Audio Visual	Topic 5: Cyber security	Topic 6: Enterprise project
Computer Science	Y10	<p><b>TOPIC: Fundamentals of algorithms (1)</b></p> <p>1.1 Algorithms, decomposition, and abstraction 1.2 Developing algorithms using flowcharts</p>	<p><b>TOPIC: Fundamentals of algorithms (1)</b></p> <p>1.1 Algorithms, decomposition, and abstraction 1.2 Developing algorithms using flowcharts</p>	<p><b>TOPIC: Programming basics (2A)</b></p> <p>2A.1 Data types and operations 2A.2 Sequence and selection 2A.3 Iteration 2A.4 Arrays and records</p>	<p><b>TOPIC: Programming techniques (2B)</b></p> <p>2B.1 Procedures and functions 2B.2 Validation and authentication 2B.3 Determining the purpose of algorithms 2B.4 Errors and testing</p>	<p><b>TOPIC: Fundamentals of data representation (3)</b></p> <p>3.1 Storage units and binary numbers 3.2 Binary arithmetic and hexadecimal 3.3 ASCII and Unicode 3.4 Images 3.5 Sound</p>	<p><b>TOPIC: Fundamentals of data representation (3)</b></p> <p>3.1 Storage units and binary numbers 3.2 Binary arithmetic and hexadecimal 3.3 ASCII and Unicode 3.4 Images</p>

		1.3 Developing algorithms using pseudocode 1.4 Searching algorithms	1.3 Developing algorithms using pseudocode 1.4 Searching algorithms			3.6 Compression	3.5 Sound 3.6 Compression
<b>Computer Science</b>	<b>Y11</b>	<b>TOPIC: Computer systems</b> 4.1 Boolean logic 4.2 Application and system software 4.3 Classification of programming languages and translators 4.4 Systems architecture 4.5 The CPU and Fetch –Execute cycle 4.6 Memory 4.7 Secondary storage	<b>TOPIC: Fundamentals of computer networks (5)</b> 5.1 Wired and wireless networks 5.2 Network security 5.3 Protocols and layers	<b>TOPIC: Cyber security</b> 6.1 Cybersecurity threats 6.2 Social engineering 6.3 Malicious code 6.4 Detecting and preventing cyber security threats	<b>TOPIC: Relational databases and SQL (7)</b> 7.1 The concept of a database 7.2 The concept of a relational database 7.3 Structured query language (SQL)	<b>TOPIC: Ethical, legal, and environmental impacts of digital technology</b> 8.1 Ethical impacts of technology on society Environmental impacts of technology on society 8.3 legislation  <b>TOPIC: Revision</b>	