/Computing@Balcarras_

SUBJECT	YEAR	TERM
A-Level Computer Science (OCR)	**12**	**1**

UNIT

Systems Architecture

INTENT

PRIOR LEARNING (TOPIC) – GCSE Systems Architecture

In this unit pupils explore the inner workings of computer systems. This builds upon the knowledge pupils learned at GCSE. However, adds, as you would expect, a far greater level of depth. For example, pupils will learn about different approaches to processor design, such as Harvard vs Von Neumann Architecture and differences between CISC and RISC.

Specification Points: This unit covers points 1.1.1 to 1.1.3

FUTURE LEARNING (TOPIC): Representation of Data & Boolean Algebra

IMPLEMENTATION

Throughout the unit pupils will cover:

- The parts of a CPU, including the roles of registers, buses, CU and ALU.
- The fetch-decode-execute cycle.
- Factors impacting the performance of a CPU, including pipelining.
- The use of parallel and multi-core processing.
- GPUs, including their uses outside of processing graphics.
- Different input, output and storage devices.

IMPACT

Assessment: Pupils will sit a 40 mark in-lesson assessment at the end of the unit, the score from which will be translated into an A* to E style grading.

In addition to this, pupils will complete regular exam style questions both during lesson and as part of homework tasks.

HOW CAN PARENTS HELP AT HOME?

All course materials are available via Firefly. In the build-up to the assessment, parents can help by supporting their child's revision. This can include testing them using flash cards or simply getting them to explain topics to you.

HELPFUL READING/FURTHER DISCUSSION

READING/EXTRA-LEARNING

There are an enormous number of online courses and tutorials to help pupils develop their computer science skills further.

Visit the Next Steps section of the Computing department's Firefly page for more details.

CAREERS

The programming skills learnt in this unit lead perfectly into a wide range of careers including electrical engineer, IT technician and IT consultant.

WIDER SKILLS

Digital Literacy
Problem Solving
Resilience

VOCABULARY

ALU, CU, MDR, MAR, PC, CIR, ACC, IR, System Bus, Control Bus, Address Bus, Data Bus, Clock, Cache, Cores, Pipelining, Parallel Processing, RAM, ROM, Virtual Storage, GPU, Von Neumann, Harvard, CISC, RISC, FDE