

SUBJECT		YEAR	TERM
Computer Science (OCR)		11	2
UNIT			
Algorithms			
INTENT			
PRIOR LEARNING (TOPIC) – Programming Fundamentals			
At an abstract level, pupils are taught how algorithms can be represented using a range of methods including pseudocode and flow charts. They also learn some core concepts of problem solving, such as abstraction and decomposition. The majority of this unit, however, focuses upon understanding a range of common algorithms used to both sort and search data.			Specification Points: This unit covers point 2.1.1 to 2.1.3
FUTURE LEARNING (TOPIC): A-Level Computer Science			
IMPLEMENTATION		IMPACT	
Throughout the unit pupils will cover: <ul style="list-style-type: none"><li>Understanding the principles of computational thinking.</li><li>Decomposing problems into inputs, processes and outputs.</li><li>Representing problems as structure diagrams.</li><li>Interpreting algorithms in high-level languages, pseudocode and flow charts.</li><li>Completing trace tables for given algorithms.</li><li>How binary and linear searching algorithms work.</li><li>How bubble, merge and insertion sorting algorithms work.</li></ul>		Assessment: Pupils will sit a 40 mark in-lesson assessment at the end of the unit, the score from which will be translated into a 9-1 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 software developer.	WIDER SKILLS Digital Literacy Numeracy Problem Solving Resilience
VOCABULARY			
Abstraction, Decomposition, Algorithm, Binary Search, Linear Search, Bubble Sort, Insertion Sort, Merge Sort.			