

COMPUTING - BIG PICTURE CURRICULUM PLANNING - YEAR 9

WHAT ARE THE BIG AIMS OF YEAR 9?

- To further deepen student's understanding and technical skill in computing/programming
- enable the scientific and practical study of computation: what can be computed, how to compute it, and how programs can be written to solve problems
- To develop student understanding about how computers and telecommunications equipment work, including storage, retrieval, transmission and manipulation of different forms of data
- To develop in students the ability to be efficient programmers
- To develop and extend students' subject/technical vocabulary
- To develop students' technical understanding and competence so that they are able to create audio/video which are fit for audience and purpose. Additionally, to select, use, manipulate and evaluate software and systems.
- To inspire more girls to study computing at KS4 and consider this as a career route

WHAT WILL EXCELLENCE LOOK LIKE IN YEAR 9?

Students will demonstrate:

- consistently high levels of technical proficiency in programming and debugging
- greater understanding and evidence of advanced programming techniques and the ability to combine techniques appropriately
- the ability to solve more complex problems efficiently
- an ability to work with greater independence
- competent and fluent use of technical language
- greater resilience
- curiosity beyond learning undertaken in the classroom
- deeper holistic understanding of hardware/software/data representation and how these elements integrate
- ability to support peer learning to address misconceptions

WHAT KNOWLEDGE DO THE PUPILS NEED TO ACQUIRE?

- Develop deeper understanding of computational thinking methods: Decomposition (breaking down), Abstraction (removing unnecessary detail), Algorithmic Thinking (making steps & rules and representing these)

WHAT SKILLS DO THE PUPILS NEED TO DEVELOP/DEEPEN?

- Debugging
- Programming (text based)
- Applying boolean logic
- Applying computational thinking methods to design

<ul style="list-style-type: none"> ● Deeper understanding of sequence, selection, iteration ● Pattern Recognition/generalisation (spotting and using similarities) ● Text based programming language syntax (Python) ● Boolean logic (AND OR and NOT) and how to present this ● Develop deeper understanding of data types, data representation ● Features and purpose of IDE's and video/sound editing software ● Computer legislation and ethics ● Features and purpose of different types of computer hardware and software 	<p>algorithms and solve problems</p> <ul style="list-style-type: none"> ● Analysing and predicting ● Information handling: finding, creating, judging, manipulating data and information ● Applying the systems life cycle to any given computing/IT problem ● Technical proficiency ● Fluent use of technical language ● To be able to convert between different number bases (2, 10, 16)
<p>WHAT MISCONCEPTIONS MAY THEY HAVE FROM PREVIOUS LEARNING?</p> <ul style="list-style-type: none"> ● that place value of decimal applies to binary ● that decimal mathematical addition applies to binary addition ● programming is for boys ● that USB is an input device ● that copy and paste is an acceptable demonstration of learning! 	
<p>WHAT ASSESSMENTS WILL BE USED ACROSS THE YEAR TO DEMONSTRATE HOW THE PUPILS HAVE ACQUIRED THE KNOWLEDGE/DEVELOPED SKILLS?</p> <ul style="list-style-type: none"> ● Knowledge Check/Baseline assessment (J276 Mooc or compilation paper - MCQ and extended responses) ● 3 Entry level assessments; Computing Systems, Computational Thinking, Algorithms & Programming, plus one practical programming assessment to assess skills. 	