

COMPUTING - BIG PICTURE CURRICULUM PLANNING - YEAR 8

WHAT ARE THE BIG AIMS OF YEAR 8?

- To 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 different forms of data and how these can be manipulated
- To develop in students the ability to be efficient and critical users of technology
- To develop understanding about the risks associated with the use of technology and how to keep themselves/others safe
- To develop and extend students' subject/technical vocabulary
- To develop students' technical understanding and competence so that they are able to create a range of digital artefacts (bitmap and vector graphics, spreadsheet quiz and programs) which are fit for audience and purpose. Additionally, to select, use, manipulate and evaluate software.
- To inspire more girls to pursue computing and consider this as a potential future career route

WHAT WILL EXCELLENCE LOOK LIKE IN YEAR 8?

Students will demonstrate:

- secure ability to translate their understanding of programming from graphical to text based
- greater technical proficiency in programming and debugging
- developing understanding and evidence of more advanced programming techniques (different forms of iteration)
- a more proactive approach to working independently to solve problems and find information to self-support
- secure use of familiar technical language
- greater resilience
- curiosity beyond learning undertaken in the classroom
- ability to support peer learning to address misconceptions

WHAT KNOWLEDGE DO THE PUPILS NEED TO ACQUIRE?

- Deeper understanding of computational thinking methods: Decomposition (breaking down), Abstraction (removing unnecessary detail), and Algorithmic Thinking (making steps & rules and representing these)
- Deeper understanding of key constructs of programming; sequence, selection, iteration (count and condition controlled)
- Programming language syntax (Text based - Python)
- Data types

WHAT SKILLS DO THE PUPILS NEED TO DEVELOP?

- Debugging
- Programming - text based
- Applying computational thinking methods to design algorithms and solve problems
- Analysing and predicting

<ul style="list-style-type: none"> ● Data representation ● Features and purpose of a variety of software; graphics, modelling, programming, image editing ● Digital literacy, computer legislation and ethics ● Deeper understanding of collaborative working methods (ie. Google docs/drive/sharing) ● Features and purpose of different types of software ● Risks of technology (dangerous content/contact/conduct) for self, peers, others in digital spaces/communities, how to manage risk and report concerns, ● Features and benefits of a positive online profile/digital footprint ● Deeper understanding of the systems life-cycle 'way of working' (eg. analysis/ design/ implementation/ testing/ evaluation) 	<ul style="list-style-type: none"> ● 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
<p>WHAT MISCONCEPTIONS MAY THEY HAVE FROM PREVIOUS LEARNING?</p> <ul style="list-style-type: none"> ● that safe privacy settings are automatically applied when using social media ● that updates to social apps don't require actions from them ● that they don't need to read terms and conditions when registering on apps - not checking permissions ● that spreadsheets are only used for solving mathematical problems ● that there is no relationship between Scratch and text-based programs ● 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 for each topic (MCQ) ● Progress assessment for each topic ● Rubric/written feedback relating to success criteria for each topic 	