# Y9 ROADMAP – COMPUTER SCIENCE

**Subject Aim:** We will continue working with text-based editors looking at sequences of data in python. We will look at data science, cybersecurity and create our own animations.

*1)* **How do companies keep our data safe?**

## TERM 1

### Python- Unit 1: sequences of Data.

This unit introduces learners to how data can be represented and processed in sequences, such as lists and strings. Learners will process solar system planets, book texts, capital cities, leaked passwords, word dictionaries, ECG data, and more.

## TERM 2

### Media Animations- Unit 2 : Lights, Camera, Render

Films, television, computer games, advertising, and architecture have been revolutionised by computer-based 3D modelling and animation. In this unit learners will discover how professionals create 3D animations using the industry-standard software package, Blender. By completing this unit learners will gain a greater understanding of how this important creative field is.

## TERM 3

### Data Science- Unit 3 : Delving into Data Science

In this unit, learners will be introduced to data science, and by the end of the unit they will be empowered by knowing how to use data to investigate problems and make changes to the world around them. Learners will be exposed to both global and local data sets and gain an understanding of how visualising data can help with the process of identifying patterns and trends.

## TERM 4

### Representations  - Unit 4 : Going Audio Visual

We will focus on making digital media such as images and sounds, and discover how media is stored as binary. You will take samples of analogue signals to illustrate your ideas, then bring all them together to form one coherent narrative. The unit has a significant practical aspect; you will use design software to manipulate images and sounds. Representations are applied in real settings.

## TERM 5

### Cyber Security- Unit 5: Introduction to Cyber Security

This unit takes learners on a journey of discovery of techniques that cybercriminals use to steal data, disrupt systems, and infiltrate networks. The learners will start by considering the value their data holds and what organisations might use it for. They will then learn about social engineering and other common cybercrimes, and finally look at methods to protect against these attacks.

## TERM 6

### Cyber Security Unit 6:  Hacking and e-safety

Learners will investigate different scenarios and look at how to combat cyber crime. They will work through three levels on the cyber start program and navigate through the different levels.

## ASSESSMENT

- Most lessons will test your knowledge using a variety of activities including Knowledge Tests, the big picture and exit tickets.
- For each unit, work will be assessed through written Test that will assess your understanding of the key vocabulary, knowledge and concepts that have been studied.
- The study of each unit will have practical elements which may be attempting tasks to strengthen your knowledge of tools
- Assessments and tasks will link into the wider aspects of computer science and equip students ready for GCSE.

## INDEPENDENT LEARNING

- Knowledge Organisers are expected to be used weekly to support the learning and recap of key vocabulary as the course progresses.
- Students will have set extension tasks that extend on existing knowledge and link to wider aspects in the community.
- The following websites can help students build on their knowledge.
- https://www.online-python.com/#google_vignette
- https://cyberstart.com/

## ENRICHMENT

Students will have the opportunity to work through the cyber start programme this can also be used as part of their independent learning.

## What Next?

Once completed, students can begin their KS4 journey where you will continue studying python command line, cyber security and more information on IDEs and data representation.

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