

## **KS3 Computing (Year 7-9)**

KS3	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 7	General IT skills	Cyber Wisdom	Data representation	Networks	Game design	Scratch game project
Year 8	Data representation	Hardware and software	Spreadsheets	Cyber Security	HTML	Python
Year 9	Spreadsheets	Python	Networks	HTML and JS	Hardware and software	Game Design and Prototyping

## Year 7

### Term One: General IT skills

#### Summary:

Students will learn, understand skills required to cover the following:

- ICT skills
- Files
- Emails
- folders
- E safety
- OneNote
- word skills

### Term Two: Cyber Wisdom

#### Summary:

Students will learn:

- How keep themselves safe whilst on line
- what malware is, different types of malware and how to prevent it
- what phishing is and how to spot it
- what encryption is and why it is used
- what a digital footprint is and why it is important
- how to tell if sources are credible and knowing what online content to trust

## Term Three: Data representation

### Summary:

Students will learn:

- Number bases including binary and hexadecimals.
- Binary and hexadecimal conversion
- Binary addition
- Representing images
- Representing
- Text encoding

## Term Four: Networks

### Summary:

Students will learn:

- What networks are and why they are used?
- What we used before networks
- Different types of networks
- How networks relate to the internet and world wide web

## Term Five: Game design

### Summary:

Students will learn:

- What goes into making a game and the different people involved?
- What is game design?
- Agile development
- Surveys and prototyping
- Different levels of fidelity in prototyping

## Term Six: Scratch game project

### Summary:

Students will learn:

- How to use scratch
- Sequence programming skills
- Selection programming skills
- Iterative programming skills
- Background and UI control
- Sprite control
- I/O control

This is an extended project for the students and by the end of term the students should have a fully functional Pacman clone game.

# Year 8

## Term One: Data representation Summary:

Students will learn:

- Number bases including binary and hexadecimals.
- Binary and hexadecimal conversion
- Binary addition
- Representing images
- Representing sound
- Representing
- Text encoding

## Term Two: Hardware and software

### Summary:

Students will learn:

- What is hardware?
- What is software?
- Input/output devices
- Internal components
- Operating systems
- Types of software
- Choosing hardware

## Term Three: Spreadsheets

### Summary:

In this unit, learners will gain an understanding and knowledge of how to use spreadsheets to store and manipulate data, how to use common functions, and how to extract data to create visual representations using charts

## Term Four: Cyber Security

### Summary:

Students will learn:

- What is cyber security and why is it important?
- What is social engineering and how do we protect against it?
- Different types of malware
  - Worm
  - Virus
  - trojan
- Penetration testing
- How to prevent cyber threats
  - Encryption
  - Biometrics
  - Strong passwords

## Term Five: HTML

### Summary:

This scheme of work introduces writing HTML 4 and external CSS sheets.

Students will work through a series of exercises with the help of step-by-step instructions and videos.

By the end of the project, they will have developed a website consisting of 3-4 pages. They will write these pages by hand using HTML code and control the formatting and style through an external CSS file (which they will also write themselves).

## Term Six: Python

### Summary:

This scheme of work guides students from the basics of writing simple one-line programs through to using IF...Else and Elif and basic recursion functions.

## Year 9

### Term One:

#### Spreadsheets

### Summary:

In this unit, learners will gain an understanding and knowledge of how to use spreadsheets to store and manipulate data, how to use common functions, and how to extract data to create visual representations using charts.

### Term Two:

#### Python

### Summary:

This scheme of work recaps the work students did in year 8 on the basics of python then builds on this knowledge to create more advanced programs with higher levels of functionality up to and including the use of modular programming displayed with subroutines.

### Term Three:

#### Networks

### Summary:

This scheme of work recaps the work students did in year 7 on networks and some of the work in year 8 on cyber security then follows on to build on this knowledge into more advanced concepts such as how data travels and packet journeys.

## Term Four:

### HTML and JS

#### Summary:

This scheme of work recaps the work students did in year 8 on HTML and CSS but aims to build on it, adding java script to different web applications to improve functionality and interactivity for the user. By the end of the unit students should understand HTML, CSS, and JS and how they all interact to create a usable website.

## Term Five:

### Hardware and software

#### Summary:

This scheme of work recaps the work students did in year 8 on hardware and software and builds on it to look into different hardware and software in more detail for example examining what is happening inside the CPU and Memory.

## Term Six: Game Design and Prototyping

#### Summary:

Students will learn:

- What goes into making a game and the different people involved?
- What is game design?
- Agile development
- Surveys and prototyping
- Different levels of fidelity in prototyping
- Iterative design