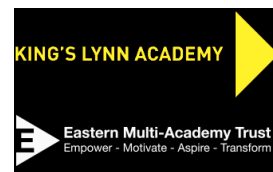


Implementation: Curriculum Narrative



Subject: ICT

Year: 2019/2020

Author: T Ward-Robinson

Key Knowledge

Pupils will know

Key Threshold Concepts:

Year 7

How to use computers safely, effectively and responsibly (Esafety and Digital Literacy)

Digital Creativity – Faking it (Image editing)

3D Designs

Digital Literacy – File Management and Email Use

Basic Programming – Scratch Programming

Understanding How Computers Work 1

Year 8

Understanding computers 2

Binary Logic

Digital Creativity – Logo Design

Digital Literacy – Myth Busters (Information Validity and bias)

HTML and Website Development

Programming 2

Year 9

Computer Crime and Cyber Security

Digital Creativity – Sound Editing

Digital Literacy - Creating Multimedia Products

Programming 3

Databases

Communication & Networks

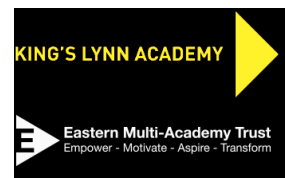
Key Skills

Pupils will be able to

Subject Skills:

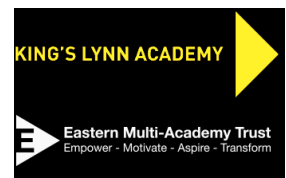
Year 7

- Set up a File Management structure
- Outline the dangers of Social networking example:
“Learn about the possible dangers of social networking sites
Learn how to respond to threats on the Internet
Learn how to keep your identity secure on the Internet”
- Demonstrate knowledge of keeping your data safe
- Use Email efficiently
- Carry out efficient web searches
- Produce a presentation using presentation software
- Select and use tools and facilities in word processing software to produce business documents
- Select and use tools and facilities in DTP software to produce business documents
- Explain Sequencing instructions
- Add Movement to sprites
- Add Lives and Scoring to Scratch games
- Add a new level to Scratch games
- Randomise the behaviour of sprites
- Add Shooting, jumping and sounds to computer games
- What is Airbrushing?
- Apply Photo Enhancing Techniques
- Apply Photo Editing Techniques
- Perform Image Manipulation
- Explain what a computer is
- Explain the history of Computers
- Explain Moore’s Law
- Explain the functions of different computer components
- Explain “Computers as processors”



Year 8

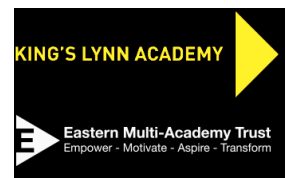
- Distinguish between hardware and software
- Identify input, output and storage devices
- Name at least five pieces of software
- Understand what happens at the “Process” stage
- Suggest appropriate input and output devices for a given scenario
- Draw a block diagram of the main components of a computer: input, processor, output and storage
- Explain what main memory is used for
- Distinguish between main memory and permanent storage devices
- Name the three stages in the Fetch Execute Cycle
- Define Hz, MHz and GHz and state how these relate to the speed of the processor
- Understand the difference between RAM and ROM and what ROM is used for
- State why all data is represented in binary in a computer
- Understand that a particular bit pattern may represent, for example, an instruction to do something, a letter, a number or a tiny piece of a graphical image
- Define a Bit, Byte, Kb, Mb and Gb
- Convert integers to binary numbers
- Convert binary numbers to integers
- Look up from a table the bit pattern for a given character
- State how many different characters can be represented using 8 bits
- Give examples of alphanumeric characters and special symbols that can be represented in ASCII
- Show that a bit pattern can represent either a character or a decimal number
- Add two binary numbers (each less than 7 binary digits)
- Multiply a binary number by 2
- Identify a binary number as being odd or even
- State the typical capacities, strengths and weaknesses of different storage devices
- Describe how data is stored on a CD
- Describe how 0s and 1s are represented by pits and lands on a CD
- Name three types of optical storage device
- Be able to apply their knowledge in answers to a range of questions



- Searching the Internet effectively
- Identifying facts from opinion
- Understanding URLs
- Using efficient research techniques to prove or disprove a chosen research topic.

Year 9

- Importing Audio Tracks
- Saving Audio projects
- Selecting Audio
- Adding special effects
- Using the menu tools appropriately e.g. copy, paste, cut, time shift, select. Record etc.
- Creating a Podcast/radio advert/background music for Play or Movie
- Exporting Audio Project
- Know why 3D design applications are used in the real world
- Understand some of the advantages and disadvantages of 3D design packages
- Be able to use a simple 3D design application in order to create a 3D design of a chair
- Know how to create a basic house design using 3D design software
- Understand some of the different stages used during the development of a product such as a car or house
- Be able to use the tools in Google Sketchup in order to create a realistic looking house design.
- Know how to use an increasingly wide range of tools within a 3D design application
- Understand how to translate a 2D sketch on paper into a 3D design on the computer
- become more confident in their use of a 3D design application
- Know how to use an increasingly wide range of tools within a 3D design application
- Understand how to translate a 2D sketch on paper into a 3D design on the computer
- Become more confident in their use of a 3D design application
- Know how to import an image from Google Earth into Google Sketchup



- Understand how to add textures from photographs onto the sides of a building designed in Sketchup
- Identify how they could apply the skills they have learned during this lesson to other subjects which they study
- The purpose of computer networks
- The advantages and disadvantages of networks
- The hardware needed to create a network
- Network topologies
- Difference between LANs and WANs
- The purpose of Data packets and routing
- Physical connections from the home to the Internet

Subject Specific Knowledge, Sequencing and Spiral Teaching:

E-safety is a priority topic for Y7 and the concepts are revisited in Y9 during the Digital Crime and Cyber Security module.

Digital literacy (office applications) is introduced in Y7 and further developed during Years 8 and 9

Basic programming is introduced in Y7 with Scratch before being developed, using Python, in years 8 and 9

Digital Creativity is introduced in Year 7 before being further developed using increasingly specialist software during Years 8 and 9

The basics of how computers work are introduced in Year 7, further developed in Year 8 and completed in Y9 with an understanding of Communication and Network systems in Year 9

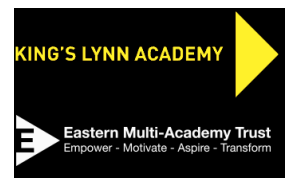
Cross-Curricular Knowledge Links:

“Cybersafe” (Y7) “Computer Crime and Cyber Security” (Y9) - could/should run alongside a relevant CBV safety theme
“Faking It” (Y8) and “Mythbusters” (Y8) – these modules look at digital image manipulation and reliability and validity of information and potentially could link with CBV (body image, celebrity shaming, self-esteem, social influencers, body dysmorphia etc) and with English (fake news, persuasive writing and descriptive writing)

“Games Masters!” (Scratch Y7, Python or Small Basics Y8, Gamemaker or App Inventor Y9) – **DT** (project planning, story boarding, logic boards and boolean operators) **Art** (design elements) **Drama** (scripts and roles) **English** (creative writing) **Maths** (sequencing instructions and logical thinking)

“Better by Design” 3D Design – ICT could explore the technical content and **DT/Graphics** create the context and project with sound editing we could combine a project with Music/Drama. If we replace it with video editing/creating social media content we could combine with an **English** or **drama** project.

“Webmasters” Website development – this could link with **PE** and be used to record player information, performances, results etc



“10 types of People” – Introduction to binary logic; links with *maths* topics of conversion (hexadecimal, binary to denary etc)