



## Key Stage 3 Computing / ICT Long Term Plan

### **Main Aims:**

Computing at Key Stage 3 is part of the national curriculum and is made up of three key areas: computer science, digital literacy and information technology. These three strands teach children how computers and computer systems work, how to design, build and analyse programs and how to find and manage digital information securely. The curriculum aims to equip young people with the knowledge, skills and understanding they need to thrive in the digital world of today and the future.

Our curriculum is designed to ensure all our learners increase their opportunities and life chances in preparation for life beyond school, becoming globally aware, self aware and work ready. All students will be able to demonstrate they are confident, self-assured learners with a clear focus on progress with high aspirations.

Opportunities provided will ensure students become culturally and globally aware as individuals:

**Literate:** Students will engage in reading industry related texts and vocational scenarios. Key terms will be used linked to specific topics.

**Independent:** Students will complete projects and research independently. Differentiated activities will be given to enable students to work at an appropriate level.

**Numerate:** Students will focus on a range of skills which will incorporate numeracy.

**Culturally aware:** Students will be made aware of a wide range of global cultures through the study of businesses on a local to international level.

Opportunities provided will also support students with our BEAM policy:

**Behaviour** - Students show a positive attitude to learning, and display good conduct around school, so that they achieve their full potential.

**Emotions** - Students show a resilient attitude to attending school, so that they can achieve their full potential and are supported in the development of their emotions in order to cope with any situations they encounter.

**Achievement** - Students are supported in making the best possible progress and achieve their full potential.

**Mental Health** - Students feel supported with their mental health.



## Year 7

### Autumn 1

#### E-Safety & Presentations

- Evaluate the online world and their own internet activity for safety concerns and equip themselves with tools for protecting their online identities.
- Understand the risks when using technology, recognise inappropriate content, contact and conduct, and know how to report concerns.
- Understand the positive and negative impacts of social media, age, passwords, chatrooms, IM, cyberbullying, grooming, sexting, sharing photos, and private / public information will be investigated.

### Autumn 2

#### Edublocks - Scratch to Python

- Learn how to transfer skills learnt in block based programming to text based programming.
- Code with text-based languages like Python.
- Learn basic coding concepts, sequencing, iteration, data types, variables and functions using python.

### Spring 1

#### 3D Design (CAD)

- Create 3D designs using a software application called Google Sketchup
- Know why and how 3D design applications are used in the real world
- Use Google Sketchup to create a house in Northumberland
- To use a spreadsheet to calculate costs and set budget using formulas and functions
- To produce a PPT presentation to persuade the Grand Designs team to build your holiday home
- To critically evaluate their project and suggest improvements.

### Spring 2

#### Drawing & Manipulating Shapes

- Explore the links between maths, art and computer science.
- Understand simple algorithm design and the importance of being able to identify the important ideas (abstraction) and breaking down the problem into manageable units (decomposition).
- Students will also be introduced to repetition (iteration) as one of the key constructs in programming.
- Explore how these skills can be applied when solving a wide range of problems, both computer-based and throughout their everyday lives.

### Summer 1

#### AI/Cyber Security

- Techniques used by cyber criminals to steal data and disrupt systems.
- Cyber Security, Legislation, Data Protection Act, Computer Misuse Act. The Data Protection Act.
- Threats to data security. Data loss, corruption & theft. Actions to minimise risk.

### Summer 2

#### Creating Animations

- Discover how professionals create 3D animations.
- Learn basic modelling, texturing, and animating skills; outputs will include 3D models.
- Evaluate animations and suggest improvements.



Identify examples of artificial intelligence and machine learning in real work	
<b>Year 8</b>	
<b>Autumn 1</b>	<b>Autumn 2</b>
<b>Computer Systems</b> <ul style="list-style-type: none"><li>• Purpose of a computing system</li><li>• Computer hardware/software/Input and output devices</li><li>• Storage devices</li><li>• CPU/RAM/ROM &amp; motherboards</li><li>• Moore's Law/Binary</li></ul>	<b>Website Creation, HTML &amp; CSS</b> <ul style="list-style-type: none"><li>• Explore the technologies that make up the internet and World Wide Web.</li><li>• Learn about the different HTML tags</li><li>• Design and create a basic webpage using HTML &amp; CSS</li><li>• Evaluate website</li></ul>
<b>Spring 1</b>	<b>Spring 2</b>
<b>Spreadsheet Modelling &amp; Careers in Computing.</b> <ul style="list-style-type: none"><li>• Learn how to create and use a spreadsheet</li><li>• Use basic formulas, functions, formatting &amp; creating charts.</li><li>• Know to sort data into tables, to write absolute cell references and to use advanced tools such as conditional formatting.</li><li>• Careers in computing-real world examples.</li></ul>	<b>E-safety &amp; Computational Thinking</b> <ul style="list-style-type: none"><li>• How to use technology safely, respectfully, responsibly and securely, including protecting their own online identity.</li><li>• Algorithmic thinking-algorithms, abstraction, decomposition &amp; pattern recognition.</li><li>• Searching and sorting algorithms.</li></ul>
<b>Summer 1</b>	<b>Summer 2</b>
<b>App Design &amp; Ethics of Computing</b> <ul style="list-style-type: none"><li>• Create a mobile app, using App Lab from code.org.</li><li>• Research apps, design an app and code an app.</li><li>• Evaluate/improve apps.</li></ul>	<b>Python Programming</b> <ul style="list-style-type: none"><li>• Introduction to text-based programming with Python.</li><li>• Learn the basics of programming using Python-Data types, inputs &amp; outputs, calculations, IF statements, using loops, lists &amp; create shapes using python turtle.</li></ul>