Curriculum Overview – COMPUTING Summer Term

Etone College
Progress For All

YEAR 7

Digital Imaging
This term our Year 7 pupils will be embarking on the more creative side of the curriculum and will learn how to use different software to create digital images. As well as embarking upon new skills they will learn the theory behind the purpose of digital images and how they are used in a variety of different sectors.

By the end of the term pupils will know:

- Why images are altered
- How to identify images that have been altered.
- Which tools are vector and bitmap
- Which tools are suitable to use for a specific purpose
- How to use the graphics application to create a specific graphic

Kodu
Moving on from Digital Imaging pupils will finish the year on Kodu which is a game lab experience. The main goal of Kodu is to expose pupils to computer programming in a fun environment, while getting them excited about potential careers in computer science by allowing them to create their own games. This makes them producers of their own media rather than just consumers of it.

By the end of the term pupils will know:

- Better understand the steps involved in creating a computer program
- Improve problem solving skills, and foster problem-solving practices
- Follow online and offline directions more fluidly
- Learn to compose stories in an alternative format and through varying mediums
- Implicitly practice math through branching and scoring
- Develop more positive attitudes towards computer programming
- Create increasingly complex games thus showing a deeper understanding for complex coding sequences
- Show evidence of perspective taking and empathy in game play
- Collaboratively work to create innovative solutions

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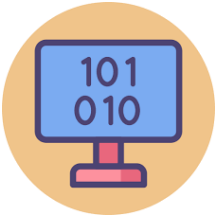
YEAR 8

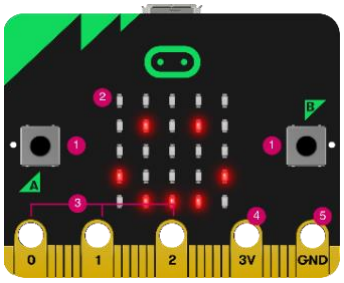
Data Representation
Year 8 Pupils will continue on their computer science journey and begin their Data Representation topic.

Data can be represented in many different forms. You can see this happening throughout time, for example, in the use of cave paintings and clay tablets, through to the use of Morse code. Data and instructions in a computer are formed using a series of 1s and 0s. This unit allows pupils to gain the understanding and skills required for the data representation sections at KS4. First, pupils look at binary and hexadecimal numbering systems, how they work, and how to convert between bases. Then, pupils explore different coding systems and find out how text, images, and sound are represented in computers.
Pupils will have an opportunity to develop their capability, creativity and knowledge in computer science, digital media and information technology. This unit will develop and apply their analytic, problem-solving, design, and computational thinking skills



By the end of the term pupils will know:
- how computers use numbers.
- How to use different number systems and convert between them.

BBC Micro:bits
The BBC micro:bit is an award-winning programmable device that allows pupils to get hands-on with coding and digital making. Using it will help them recognise the power of technology in the real world.
Pupils will be introduced to the micro:bit as an input, process, output device that can be programmed. P upils will familiarise themselves with the device itself and the programming environment, before creating their own programs. They will then run their programs on the device.



By the end of the term pupils will:
- apply their knowledge of programming to a new environment
- test their program on an emulator
- transfer their program to a controllable device

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YEAR 9

Data Science
In this unit, pupils 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. Pupils 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. Towards the end of the unit, the pupils will go through the steps of the investigative cycle to try to solve a problem in the school using data.

Pupils will also 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. Pupils will use spreadsheets to track and calculate income, make predictions, and answer "what if…?" questions. By the end of the unit pupils will know how to use cell references, fill colours, and borders, and are familiar with the basic functions, e.g. SUM, AVERAGE, MAX, and MIN. This will be an important topic especially for those pupils who will go on to study IT at Key Stage 4.

Personal Finance
This unit builds upon key knowledge and skills from Year 8 to include:

- Understanding of income and ability to generate money
- Opportunity cost
- Managing money
- Percentages
- Using software to solve computational problems

The unit also builds on some key strands of knowledge and skills from Key Stage 2:

- Allowing pupils to look after their money and realise that future wants and needs may be met through saving
- Allowing pupils to make real choices and decisions such as pocket money and contributions to charities

This topic is a great introduction to Finance for all and in particular for those pupils who will choose Business/Enterprise at Key Stage 4.