Year 8
ICT and Computing

Introduction and Overview

Departmental Aims
- To deliver outstanding standards in teaching and learning throughout the curriculum.
- To develop pupils understanding of the impact that ICT has on society.
- To prepare pupils to embrace changes in technological advancements in ICT and Computing.
- Allow pupils creativity to flourish and give them high quality skills to compete in creative and technological industries.
- To develop pupils capabilities of computational thinking.
- Create strong cross curricular links to allow pupils to use their ICT skills as a means to progress in all other subjects.
- Give pupils skills to become safer more responsible users of digital devices.
- To develop a culture of life-long learning.

Communication and Networks – A technical theory unit introducing pupils to the reasons why computers are connected together in a network. They will understand the different types of networks and be aware of the network media needed to create a network. Pupils will learn about network data speeds and the role of and need for network protocols. They will know that data can be transmitted over networks using packets and the concept of and need for network addressing and host names.

Data and Data Representation: A challenging unit introducing pupils to Computer Science theory. Pupils will learn that computers are excellent at calculations and use only a series of 1's and 0's (binary). Pupils will learn how to convert binary numbers into decimal numbers and vice versa. They will know how different types of data compression can be lossless and lossy and explain why file types like MP3 are a lossy type of compression for example. They will understand how bit patterns represent numbers, images and sounds and the relationship between binary and file size. Pupils will also demonstrate an understanding of the relationship between binary and electrical circuits including Boolean logic amongst other key learning within this interesting topic.

Web Authoring (HTML) – this topic builds upon the skills developed during the planning the trip project in year 7 whereby pupils had to design and create a website using Dreamweaver. However, pupils will learn this time that websites can also be created using code and will create a webpage entirely from HTML code. Both web design and web authoring skills are needed if pupils were to embark on a career in web development. Our pupils will be able to progress further onto post 16 courses and pathways in web development if this is a career they are interested in.

Python Programming: Basics – Building on the Small Basic topic studied in year 7, this textual programming topic gives pupils a flavour of the type of programming languages used by professionals. Computational thinking is developed in this topic and pupils are encouraged to further develop their problem solving skills to create programming solutions. Pupils enjoy the challenging nature of this topic and some will start to think about whether opting for Computer Science at KS4 is right for them. Python is the textual programming language used in the controlled assessment element of the GCSE Computer Science.

Databases – pupils will learn what databases are and how they are useful in organising and processing data. They will learn how to collect data and set up flat file and relational databases and search them to retrieve data using simple and advanced searching techniques including SQL. Pupils will learn about DBMS and the role of databases in the world of work.

How to support your child

- Check your child's exercise book regularly and talk to them about their work. Feel free to make comments in their exercise book.

- Check Milk regularly to monitor your child's homework and encourage them to complete tasks thoroughly.
- Encourage your child to explore computer programing sites such as code.org.
- Download Python (this is open source and completely free) onto your personal computer and encourage your child to practice their skills at home.

Web links

https://code.org/learn
https://www.khanacademy.org/hourofcode
https://www.thinkuknow.co.uk/
http://www.bbc.co.uk/
https://www.python.org/