Y8 ROADMAP – COMPUTER SCIENCE

Subject Aim: We will begin the year exploring graphics and looking at how to apply basic shapes and effects. Year 8 will be introduced to new concepts including HTML, CSS and app development. We will also begin our journey into command line using python.*:*

1) **How far can a vector graphic stretch ?**

TERM 1

Vector Graphics - Unit 1: Get into Shapes.

By the end of the unit learners will produce an illustration, a logo, or some icons using vector graphics. Vector graphics can be used to design anything from posters to board games, and complex illustrations. Learners will be able to better understand the processes involved in creating such graphics and will be provided with the knowledge and tools to create their own.

TERM 2

Layers of Computing - Unit 2 : Under the hood

The aim of this unit is to provide a concise overview of how computing systems operate, conveying the essentials. We will cover contemporary topics: artificial intelligence and open source software. These are linked back to the content of the unit, helping learners to both broaden their knowledge and focus on the topics addressed in the unit.

TERM 3

Web Development - Unit 3 : Navigating the Web

In this unit, learners will explore the technologies that make up the internet and World Wide Web. Starting with an exploration of the building blocks of the World Wide Web, HTML, and CSS, learners will investigate how websites are catalogued and organised for effective retrieval using search engines. By the end of the unit, learners will have a functioning website.

TERM 4

Representation - Unit 4 : From Clay to Silicon

Humans use symbols to record, process and transmit information. Introduce binary digits to your learners as the symbols computers use to perform these tasks and focus on the representation of text and numbers.

TERM 5

App Development - Unit 5: An App for that

Today, there's an app for every possible need. In this unit learners through the entire process of creating their own mobile app, using App Lab from code.org. Building on the programming concepts learners used in previous units, they will work in pairs to perform user research, design their app, write the code for it, before finally evaluating and publishing it for the world to use.

TERM 6

Python- Unit 6: An Introduction to Python

This unit introduces learners to text-based programming with Python. The lessons form a journey that starts with simple programs involving input and output, and gradually moves on through arithmetic operations, randomness, selection, and iteration.

ASSESSMENT

- Most lessons will test your knowledge using a variety of activities including Knowledge Tests, the big picture and exit tickets.
- For each unit, work will be assessed through written Test that will assess your understanding of the key vocabulary, knowledge and concepts that have been studied.
- The study of each unit will have practical elements which may be attempting tasks to strengthen your knowledge of tools
- Assessments and tasks will link into the wider aspects of computer science and equip students ready for GCSE.

INDEPENDENT LEARNING

- Knowledge Organisers are expected to be used weekly to support the learning and recap of key vocabulary as the course progresses.
- Students will have set extension tasks that extend on existing knowledge and link to wider aspects in the community.
- The following websites can help students build on their knowledge.
- https://code.org/educate/applab
- https://www.online-python.com/#google_vignette

ENRICHMENT

Students can participate in a STEM challenge: Young Coder's competition, that takes place once a year. https://codingcompetition.org/

What Next?

Once completed, you will then progress onto Y9 where you will continue studying python command line. We will start to look at cyber security attacks and methods of prevention.

North Kesteven Academy
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