Take Away 'Home Learning'

Term: 2
Year group:10
Subject: Computer Science
Topic: Data Representation

The Peri-ometer 4 task menu shows the level of challenge of each task ranging from extra mild to extra hot. All tasks should be completed during the term.

Investigate Digital Sound Representation.	Research how sound is digitized and stored in computers. - Focus on concepts like sampling rate, bit depth, and channels (mono vs stereo). - Explain how changing these parameters (sampling rate, bit depth, channels) affects the quality and file size of a sound recording.	BBC Bitesize - Sound representation https://www.bbc.co.uk/bitesize/guides/zwsbwmn/revision/5
Explore Pixel-based Image Representation.	- Research how images are represented in a computer using pixels. - Choose any digital image and describe how it might be represented in binary. Consider aspects like colour depth (e.g., 24-bit color) and resolution. - Explain how image file size might be affected by resolution and colour depth.	BBC Bitesize - How images are represented https://www.bbc.co.uk/bitesize/guides/zp3mxnb/revision/1
Apply binary and hexadecimal in a practical scenario.	Imagine you have a simple image grid of 8x8 pixels. Each pixel can be either on (1) or off (0). Create a design using this grid and represent it in both binary and hexadecimal. Write a paragraph explaining how different data representations can be used in computer graphics.	Cambridge Digital Technologies - Pixels and Binary https://www.cambridge.org/gb/education/revision/subjects/computer-science/pixels-and-binary
Convert between hexadecimal and decimal numbers.	Convert the following decimal numbers to hexadecimal: 156, 255, 32. Then, convert these hexadecimal numbers to decimal: 1A, 7F, 99. Explain the conversion process for each.	BBC Bitesize - Hexadecimal and character sets](https://www.bbc.co.uk/bitesize/guides/z26k7ty/revision/3)