

Digital Systems

Digital Technologies, Data Representation

Year 7-8

Content Description

Investigate how digital systems represent text, image and audio data using integers
(AC9TDI8K03)

VR Learning Activities

Listening and Exploration: Students engage with an interactive explanation of how text, images, and audio are represented digitally using integers.

RGB Colour and Sound Representation: Students manipulate RGB colour sliders to observe how colours in digital images are created using integer values. They also adjust buttons to change audio integers, listening to how these changes alter the sound.

Text and Unicode Exploration: Students interact with letters, numbers, and emojis, revealing their integer representations in Unicode. They receive explanations of how Unicode standardizes digital text representation.

Image Formats and Pixel Exploration: Students zoom in on images to compare pixel-based (bitmap) graphics with scalable vector graphics (SVG). They observe how data representation differs between these formats.

Knowledge Check: Students answer interactive questions related to the integer representation of text, images, and audio to reinforce their understanding.

Key Learning Areas

Critical and Creative Thinking: Students explore how text, images, and audio are represented digitally by interacting with sliders, buttons, and visualization tools. They analyze the relationships between numerical representations and the resulting changes in digital media, considering how these concepts are applied in real-world digital systems.

Digital Literacy: Students use VR technology to interact with digital data representations, such as RGB colour models and Unicode standards. They gain hands-on experience in manipulating digital components and understanding their foundational principles.

Computational Thinking: Students break down the process of representing text, images, and audio into smaller components, identifying patterns and understanding how integers form the basis of digital systems. They use logic and problem-solving skills to predict and explain the outcomes of their interactions.

Numeracy: Students analyse the numerical values that represent colours, sounds, and text. They compare data points, such as integer values for RGB colours or Unicode characters, and interpret quantitative information to deepen their understanding of how digital systems process and store data.

