Early Computers and Computing Technology

Humans have been trying to develop machines for a long time that can assist them with performing calculations and processing data. As populations grew and societies became more sophisticated over time, the need to process data increased dramatically.

The crash course of early computers traces these attempts from the abacus invented over 4000 years ago in Mesopotamia up to Hollerith's invention of punch cards in the late 19th century.

Two early 19th century pioneers of both the theory and mechanics of calculation were Charles Babbage and Ada Lovelace. He devised a general purpose machine which he called an Analytical Engine. Lovelace realised the potential of such a machine beyond calculations and published the first algorithm intended for a computer.

The 19th century saw the invention of the telegraph and the telephone, Maxwell predicted radio waves to exist and published his laws of electromagnetism culminating in Marconi's transmission of radio waves across the Atlantic in 1901. By the 1920s automobiles had becomes affordable and the first modern electronic television was invented. Communication and travel were being revolutionised. The information revolution was about to begin.

Explore a timeline of the history of computers and computing technology from the 1930s to the present day.

Some questions to consider

There are some fundamental questions teachers and students should ask themselves as journey through the evolution of computers in society.

- Computational Thinking is humans solving problems, knowing that a computer is in the wings with processing power far in excess of human processing power. But the power of computers has increased exponentially.

  Ask yourself: *Does computational thinking change in nature as processing power changes?*

- Start-up companies no longer have to begin in offices. They can start in the homes of friends, computer clubs or famously people's garages. The Personal Computer and the digital revolution have empowered people to become entrepreneurs and programmers. People who have been disabled are being increasingly enabled by new empowering technologies.

  Ask yourself: *How has this empowerment become possible over the last century and will it last?*

  Ask yourself: *What is the role of adaptive technology in the lives of all human beings?*

- The digital revolution, particularly in the 21st century, has been called a disrupter of both business and of society. Major multinational hi-tech companies have established new models for calling a taxi, booking a hotel, staying in Bed and Breakfasts, booking a table in a restaurant and then distributing the food we don't eat.

  Ask yourself:*What are the positive and negative impacts of computing on culture and society?*

- Some innovations are a natural evolution from previous developments. However sometimes a new innovation startles the world, and is more revolution than evolution.

  Ask yourself: *How does the power of computing enable different solutions to difficult problems?*