KS2 Maths Innovators: Lovelace, Napier and al-Kwharizmi

Session Length: 60 mins (plus activity)

Year groups: Upper KS2 but can be adapted to Lower KS2 (please make clear when booking)

Session Outline

Egyptian/Roman number systems (powerpoint and worksheets)
Museum gallery tour: 3 calculating inventions (Chinese abacus, Napier's Rods and Babbage's Difference Engine)
Ada Lovelace, binary and the language of computing
Activity: Make your own binary beads

Session Learning Aims:

To find out about

- mathematicians who have contributed to our understanding of maths and calculation– Ada Lovelace/ Al Kwharimzi/ Charles Napier
- different counting systems and the role of place value
- how our mathematical understanding has been shaped by people and places from the around the globe.
- Binary numbers and their role in computing

To support

- the understanding of number and everyday mathematical operations, by providing historical and cultural context/points of comparison.

KS2 Curriculum Links

Maths (number and place value)

- Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of zero and place value (Year 4).
- Read Roman numerals to 1000 and recognise years written in Roman numerals (Year 5)
- Identify the place value in large whole numbers

History

- Achievements of earliest civilisations (e.g Ancient Egypt)

- Non-European society e.g early Islamic civilisation

Resources needed for session

- Egyptian Hieroglyphics activity sheet for each pupil (PDF will be sent to school to print out)
- Roman Numerals activity sheet for each pupil (PDF will be sent to school to print out)
- Binary code sheet for each pupil
- For the binary bracelets: pipe cleaners (1 per pupil); Strips of coloured paper in 2 different colours (to roll paper beads), scissors, glue, ruler and pencil.

Pre-workshop suggested activities

- Investigate the Romans/Roman numerals or Egyptians/hieroglyphics
- Review understanding of place value

Post-workshop suggested activities

- Watch Helen's Napier's Bones video and have a go at using Napier's Bones to multiply (download the free template from TES here https://www.tes.com/en-au/resource-detail/download/6072461)
- Visit a number converter website to see how different numbers are represented in different cultures
- Read more about great female mathematical role models, e.g
  The girl with a mind for maths: The story of Roye Montague by Julia Finley Mosca
  Counting of Katherine: How Katherine Johnson Saved Apollo 13 by Helaine Becker
  Emmy Noether: The most important mathematician you've never heard of by Helaine Becker