

Year 8 Enrichment Module –Codes

The purpose of this module is to allow students to see the application of mathematics in an area not on the National Curriculum: codes and cryptography.

It provides opportunities for links to History, ICT and PSHE.

Lesson 1 – Explore use of codes in WW1 cryptography exercise, interleaving their recent learning in History about the events in the lead up to the outbreak of WW1.

Lesson 2 – Looks specifically at Caesar ciphers and mono-alphabetic ciphers. Students build a Caesar wheel and use it to decode and encode messages which give some mathematical problems to discuss, again interleaving topics they will have already covered in year 8.

Lesson 3 – What if we don't know the match up for the Caesar Cipher? Lead into Frequency Analysis. Treasure hunt around school to find code.

Lesson 4 – Vigenere Encryption and poly alphabetic ciphers. Same as Lesson 2 but with the Vigenere Code instead of Caesar cipher.

Lesson 5 – How do we crack poly alphabetic ciphers? Students investigate the use of the Kasiski examination, a method to crack poly alphabetic ciphers, leading them to see the use of technology in cryptography.

Lesson 6 – Enigma Machine. Students make a 2D enigma machine and are introduced to the idea of movable rotars. This lesson also introduces WW2 and Alan Turing.

Lesson 7 – Students look at a real life Enigma machine and the complexity of the device. They construct their own version and use it to decode a message.

Lesson 8 – The Imitation Game. Brief discussion about Alan Turing, show Chris Packham tribute and discuss legacy then show imitation game film (about 1hr 50m).