



04 – Cryptic Messages

Teachers' Notes

How were messages made secret?

Learn how the Germans used the Lorenz machine (the Tunny) to send secret messages using a binary code and tapes. Students will use a key to create their own binary codes, make a cipher wheel and write a coded message for a partner.

Background information

The Tunny code used five-bit binary numbers. Binary code is either on '1' or off '0'. This code is still used in computers today.

Each letter has a five-digit code made up of 0's and 1's.
 A = 11000 B = 10011 C = 01110

To create the Tunny code, another binary letter (the key) was added to the original letter to create a new sequence of 0's and 1's.

Binary addition works like this:
 0+0=0 1+0=1 0+1=1 1+1=0

To encipher the plain text letter A with the letter key B would give a code: 01011 and letter G

A	11000
+ B	10011
= G	01011

Key words

Cryptography | Binary | Cipher

Learning outcomes

- Learn how ciphers are made.
- Develop a basic understanding of binary code.
- Understand how machines help to make and break codes.

Prepare for the activity

- Download classroom PowerPoint.
- Prepare film clip.
- Print cipher wheels onto thick paper or card.

Equipment list

Card/thick paper, pencils, split pins, scissors.

Run the activity

- Show the film clip.
- Use the PowerPoint to introduce key words, binary code and the German Lorenz machine (the Tunny).
- Ask students to create their own key to show a simple letter-grid encryption process.
- Use the Cipher Wheel to show how to change settings.
- The binary message is '**Move tanks North**'.

Extension activities

- Students may be able to create longer words and messages.
- Try other methods to send a secret message. Which technique works best?
- Represent binary with Lego, lights, noises etc.

