River Bank Primary Knowledge Organiser	Year 5	Autumn 2 - Computing	We are cryptographers

What we will learn

Websites and links

'We are cryptographers'

This half term you will be learning about communicating information securely.

In this unit you will:

- send and receive messages in semaphore.
- lean about - and use - Morse Code.
- create secret messages and crack codes.
- create and crack more complicated codes.
- find out the importance of having a secure password.
- learn how to stay safe on the web.

This term you will learn more about communicating information securely through an introduction to cryptography (the science of keeping communication and information secret). You will investigate early methods of communicating over distances, learn about two early ciphers, and consider what makes a secure password.

Computer networks, including the internet, are not secure. To reduce the risks of this when using the internet for communication and collaboration, data is often encrypted – stored in a secret code. While these systems are complex, you will gain some understanding by looking at earlier systems. These will enable you to develop an understanding of how some algorithms work. The security of personal information online is often based on the use of passwords. Many web-based services now demand that passwords meet minimum complexity standards (although this provides no protection when users choose to tell others their passwords!). Keeping passwords secure is an essential aspect of using technology safely and responsibly.

(information from 'Rising Stars Computing')

How does the Internet work?
https://www.bbc.com/bitesize/articles/z3tbgk7
Morse code translator
https://morsecode.scphillips.com/translator.html
Crypto Scratch Project - Encrypt / Decrypt / Guess a password / Letter Count
https://scratch.mit.edu/projects/11939624/
The Science of Secrecy - Simon Singh
https://www.youtube.com/watch?v=_ZTWLAqYf9c&safe=active

Key vocabulary

Cryptography - the art of writing or solving codes.
Morse code - is a method of transmitting text information as a series of on-off tones, lights, or clicks that can be directly understood by a skilled listener or observer without special equipment.
Messages - are discrete units of communication intended by the source for consumption by some recipient or group of recipients.
Ciphers - a secret or disguised way of writing; a code.

Semaphore

The Semaphore flag signalling system is different to semaphore in computer science:

Semaphore flags are usually red and yellow for signalling between ships at sea and blue and white for signalling to and from land. When you see the "Numerical" flag it means that everything after is a number. When the letter J (Alphabetic) flag is shown in the number, it means that the number is finished and the next sequence is alphabetic. (Definition from: https://www.44mlb.com/kids-semaphore.htm)
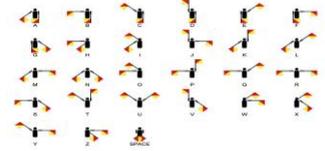
Quiz	A	B	C
Cryptography is…	the art of drawing or solving codes.	the art of painting or solving codes.	the art of writing or solving codes.
How would you prefer to send a secret message?	Discretely	Indiscreetly	Loudly
Is the internet secure?	Yes	No	Don't know
Semaphore flags are usually…	red and yellow.	red and green.	red and blue.
When you see the "Numerical" flag it means that everything after is a…	number.	letter.	symbol.