KNOWLEDGE NUGGET: DAY 4 – ASCII & Unicode	
Topic	Cryptography

Learning objectives	Success criteria
Students will… • be introduced to ASCII (American Standard Code for Information Interchage) and Unicode • learn that ASCII has 7 bits as standard but Unicode has many more • be shown how CyberChef can be used to help encrypt or decrypt ciphers • take part in a cryptography challenge	- Watching and understanding the video in its entirety. - Participating in the cryptography challenge.
Resources	**Suggested use of teaching time**
- Knowledge Nugget Video - ASCII & Unicode challenge worksheet - Answers - CyberChef and ASCII Table links below.	Video – 7 minutes Cryptography Challenge – 10 Minutes (introduced as part of the video)

Learning activity

The video will talk through the basics of ASCII and how it is a globally recognised system that gives a numerical value to all the letters, digits and symbols enabling us to communicate with our computers in binary. Students will also be introduced to Unicode, which can represent a wider range of symbols.

Students are then prompted to use CyberChef, a free tool created by GCHQ, to encrypt their messages from text to decimal. Then swap with a classmate and see if they can decrypt from decimal to text. To make their encryption more complex, students can include Hexadecimal and Octal values too.

The students will then be shown two encrypted messages (see worksheet) that they can have a go at decrypting themselves using the CyberChef tool. Answers will be listed alongside this session.

Evaluation and next steps

Websites:

https://gchq.github.io/CyberChef/ CyberChef - use this free tool to encrypt or decrypt your own messages.

https://www.asciitable.com/ ASCII Table

These links are being provided for informational purposes only; they do not constitute an endorsement or an approval by CyberFirst or the NCSC. The NCSC bears no responsibility for the accuracy, legality, or content of the external site or for that of subsequent links.

https://www.ncsc.gov.uk/cyberfirst/girls-competition to register for the next CyberFirst Girls' Competition.

This information is exempt under the Freedom of Information Act 2000 (FOIA) and may be exempt under other UK information legislation. Refer any FOIA queries to ncscinfoleg@ncsc.gov.uk. All material is UK Crown Copyright ©