

How Secure is your Door?

Teacher Notes

Crack the Code

The use of coding in high tech security locks is not a “new” idea. Roman Emperor Julius Caesar used a simple substitution cipher to code and send messages to his troops. The cipher works by substituting a letter of the alphabet with another by shifting along a predetermined number of places. For example, below is a shift of 3.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c

If a shift of 3 is always used, as is thought was the case with Caesar, then it is fairly easy for an interceptor to break the code. However, if the ‘key’ (the number of places shifted) is altered, it makes it a lot harder to decipher an intercepted message.

Activity

This activity asks students to make their own cipher wheel, to help encode and decode words, then practice these skills before setting a code for another person to try and crack.

Materials needed:

- Scissors
- Split pin

Extension: *How can we make the cipher even more secure?* One way would be to make a new wheel and jumble up the alphabet on it. Another way would be to use a different key for each word in a sentence.