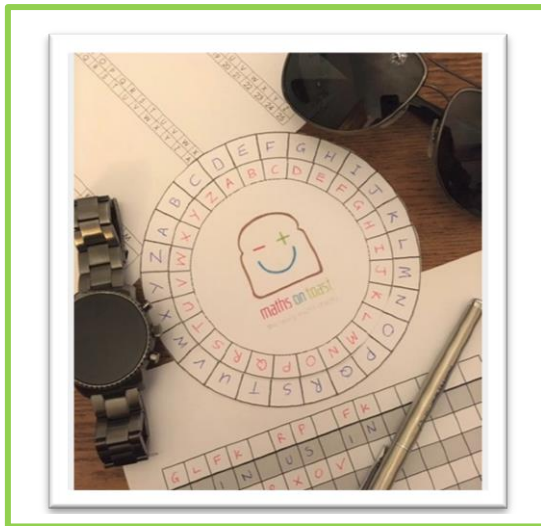


# Codebreaking for Spies



## Could you become a Maths on Toast spy?

When you think of secret agents, you might think of disguises, magnifying glasses, foreign travel... but would you think of maths? Help us on our secret mission to crack codes and unravel secret messages, using your logical and mathematical thinking.

**Write a secret message using one of the codes below and then see if someone can crack it!**

### Caesar's Code

When Julius Caesar was invading countries to increase the size of the Roman Empire, he wrote messages to his generals in code.

Instead of writing the letter 'A' he would write the letter that comes three places further on in the alphabet, the letter 'D' and so on.

When Caesar's generals deciphered the messages, all they had to do was go three places back in the alphabet.

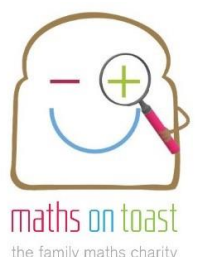
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C

### Number Code














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
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25














For more fun activities visit [www.mathsonttoast.org.uk](http://www.mathsonttoast.org.uk)

Don't forget to share your creations and comments on Twitter, Facebook or Instagram tagging @mathsonttoast using #positiveaboutmaths



## Symbol/Picture Code

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
												

### Create your own

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

### Now make your own Caesar Wheel using the template!

No printer? No problem! You could use a compass to draw your own circles, or find a circular object (like a mug) to draw around.

### Further Challenge!

Write a message with lemon juice. Keep it hidden. Reveal it with a light to decipher!

### Why's this maths?

Codebreaking involves lots of mathematical skills. You may be spotting patterns. You are using logic to crack the codes and to invent your own. When cracking codes, you will need to work systematically which can be challenging - it is something that mathematicians, codebreakers and spies have to do all the time! Consequently, you will need to keep trying and persevering when you feel stuck - another important skill!

For more fun activities visit [www.mathsontoaast.org.uk](http://www.mathsontoaast.org.uk)

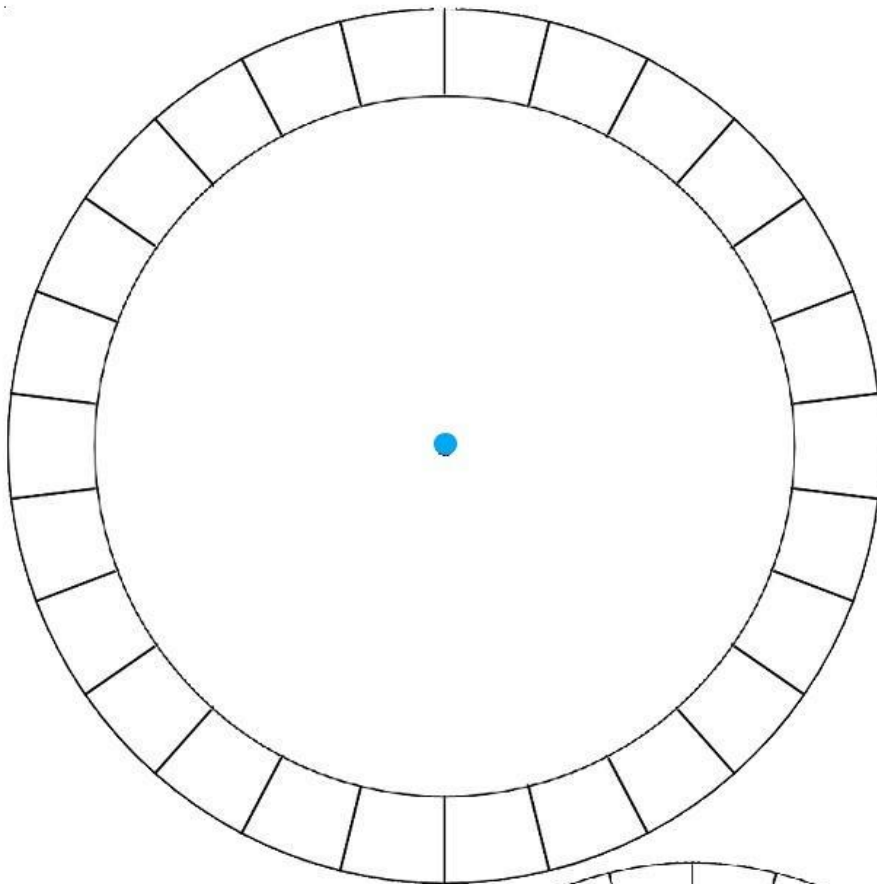
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# Caesar Wheel Template

This works best if you work in pairs and make two identical wheels...

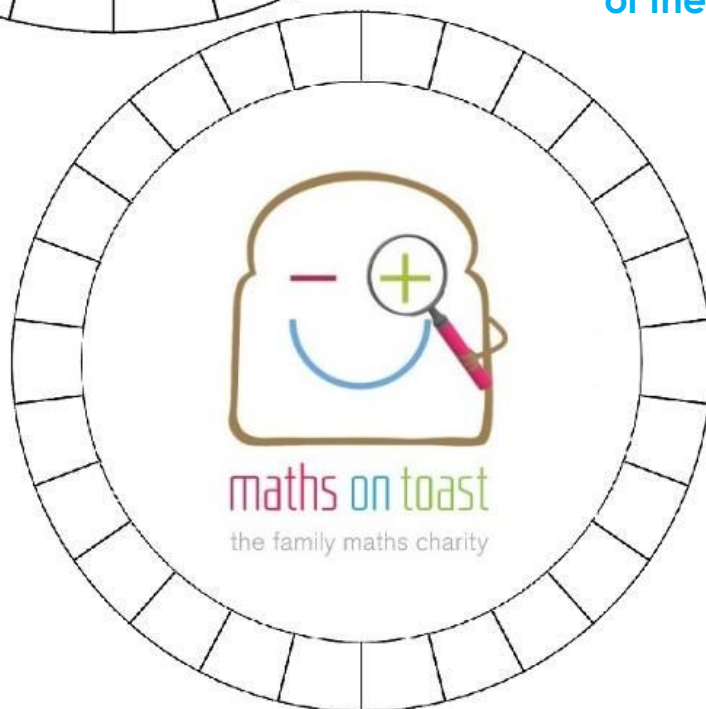
1. Write the alphabet in the spaces on each wheel, in order.

2. Cut out the wheels.



3. Put the small wheel on top of the big wheel, and put a split pin through both of them

4. Turn the wheel. Now, you can use it to encode or decode messages!



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