

# CODE SQUARES





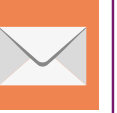

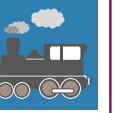






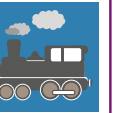


# TEACHERS' NOTES



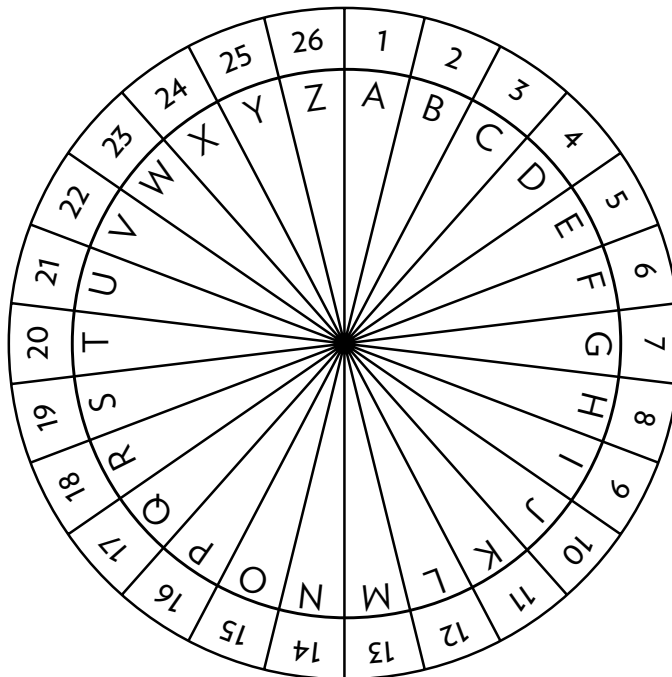
To break the Enigma code the codebreakers had to use lots of small bits of information to find the full code and decipher the message.

Can you decipher this message?  
You will need to work out the value of each picture, do some adding and use the code wheel below.

## MESSAGE

## CODE WHEEL












**Step 1:** Work out the value of each picture

			
			9
			8
8			

			15
			7
			17
8	16	15	

			
			13
			
14	17		

Picture	Value
	
	
	
	
	
	
	
	
	

**Step 2:** Add up the values of the pictures in each column of the message.

Write the numbers in the white boxes.

**Step 3:** Look up each number on the code wheel to find the message.

## TEACHERS' NOTES

Students calculate the values of the images below, add them together to determine the numerical cipher text and then use a substitution cipher to find the final plain text.

### Picture

### Further Information



Alan Turing's office was in Hut 8. He didn't like other people using his mug so he chained it to the radiator. Do you know anyone like that?



Alan Turing had a Teddy Bear named Porgy. He didn't have a Teddy Bear as a child so he bought Porgy for himself as an adult and practiced his speeches on him.



No computers meant no word processing so everything was hand written or typed on a manual typewriter. The typewriter keyboard is the same as our modern day keyboards but not the same as Enigma machine keyboards. Z, Y, and P were in different places on Enigma machines because of the frequency of these letters in German.



There were no computers, no internet and no mobile phones so information was communicated by telephones or by written message. You had to be very careful what you said on the telephone because spies could listen in.



Most people view the codebreakers only as thinkers but there was a lot of equipment that needed to be kept in working order too. Bombe machines sped up the codebreaking process but were temperamental and needed to be carefully maintained.



Enigma messages were intercepted at Wireless-Intercept stations, some of which were a long way from Bletchley Park. Messages had to get to Bletchley Park quickly and securely. Instead of sending them by post, dispatch motorbike riders brought them directly to Bletchley.



Every piece of information that the codebreakers figured out had to be kept. The more information they had, the better they would be able to understand and predict the Axis powers' actions. This all had to be carefully recorded and stored.



Bletchley Park was 'in the middle of nowhere' which helped keep it secret and secure. However, the codebreakers, military personnel and government representatives had to be able to get there easily. One of the reasons that Bletchley Park was chosen as the codebreakers' headquarters was that it had good rail links to London, Cambridge, Oxford and the north of the country.












We don't know how many pencils the codebreakers got through but it was probably thousands. With no computers, or even electronic calculators, they had to do all their calculations in their head or using pencil and paper.

# Top Secret, teacher's eyes only

			9
			9
			8
8	7	11	

			15
			7
			17
8	16	15	

			21
			13
			18
14	17	21	

Picture	Value
	3
	2
	4
	6
	1
	8
	5
	9
	7

								
+								
+								
	3/c	15/o	13/m	16/p	21/u	20/t	5/e	18/r