

Polybius Checkerboard Cipher

Overview: Polybius was an ancient Greek who first figured out a way to substitute different two-digit numbers for each letter. In the Polybius Cipher we'll use a 5x5 square grid with the columns and rows numbered.

Materials

- Pencil
- Paper

Activity: To make the key, we need a 5x5 grid. We'll let Y and Z share the last space, as Z isn't used much. Then write one letter in each box like this:

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

To substitute for a letter, we use the number of the row and the column. Remember the order is first the row, then the column.

For example:

L is in row 3 and column 2. So in place of L you'd write: "32"

I is in row 2 and column 4, so it's replaced by "24"

X is in row 5 and column 4, so you'd write "34"

Now let's encode the message: "STOPWATCH" like this:

44-45-35-41-53-11-13-23

To decode the message, we follow the same thing in reverse:

44 means look at the 4th row, 4th column to find S

53 means look at 5th row, 3rd column to get W

Continue until you get all the letters to read: "STOPWATCH"

Now it's your turn! Work out the exercises below. (You'll find answers at the back of this book.)

Exercises

1. Write the grid that is used to encode and decode messages in the Polybius Cipher. (Can you think up your own?)
2. Identify the codes representing the following letters using the grid from the example in the lesson: A, O and C.

Encode the following statements using the Polybius Cipher grid from the main lesson:

3. LET US LEAVE
4. I AM LEAVING
5. THEY WILL COME
6. SHE IS HERE

Decode the following messages using the Polybius Cipher grid from the main lesson.

7. 32-35-35-31-11-45-45-23-15-45-11-12-32-15
8. 24-45-24-44-23-24-14-14-15-34
9. 23-15-43-15-24-44-45-23-15-41-11-41-15-43
10. 32-35-35-31-11-45-33-55-12-35-35-31

Answers to Exercises: Polybius Cipher

1.

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

2. 11;35 and 13 respectively
3. 32-15-45-51-44-32-15-11-52-15
4. 24-11-33-32-15-11-52-24-34-22
5. 45-23-55(1)-53-24-32-32-13-35-33-15
6. 44-23-15-24-44-23-15-43-15
7. LOOK AT THE TABLE
8. IT IS HIDDEN
9. HERE IS THE PAPER
10. LOOK AT MY BOOK