PLAYFAIR CIPHER Teacher Guidance

Resource Summary

These activities are suitable for KS3-4 students. There is a short animation which demonstrates the Playfair cipher. You can watch this as a class or students can watch individually on tablets or phones. There are also activity sheets which can be printed as a booklet.

Watch the [Playfair Animation](https://www.youtube.com/watch?v=DxZjfsXJ6U4) You may wish to pause it and discuss elements and try working through the examples.

You can find the animation by clicking on the link above, scanning the QR code or using the web address below:

https://www.youtube.com/watch?v=DxZjfsXJ6U4

Key Questions:

- Do you think this is more or less secure than a mono-alphabetic cipher? Why?

- What do you notice about the way that the letters have been arranged into the grid?

- Which letter is missing form the grid? (J—I (i) is used when you need to encipher a J).

- When is a letter X used in a plain text message?

Activities

The main activity is on two sheets (pages 3 and 4) and can be printed double sided and folded to make a booklet. There are 4 sets of questions.

Set 1 focuses on deciphering pairs of letters in rectangles.
Set 2 focuses on deciphering pairs of letters in the same row.
Set 3 focuses of deciphering pairs of letters in the same column.
Set 4 uses a mixture of all 3 methods.

You can work through Sets 1-3 in any order, some students might prefer to do set 2 and 3 first.

You may want to print and laminate the Playfair grids on page 5 so students can draw on them with whiteboard pens.

Possible extension activities for students:

- Write your own message in Playfair Cipher and swap with a partner.

- Try creating your own Playfair Grids to encipher messages.

- Can you work out the Playfair Grid if you know the plain text and cipher text?

- Write a computer programme to encipher and decipher messages in Playfair cipher in Python or Scratch or another programming language.

PLAYFAIR CIPHER Teacher Guidance

Answers:

Question Set 1
RO XB EF
enigma
CI RK HQ
brings
ZB EN OR
throne
PM MN WI
first(x) = first
DM YR AN
hel(x)lo = hello
EF TE KH PV XA
mavisbatey = Mavis Batey
EF RQ XV EF QR
maxnewman = Max Newman

Question Set 2
DB RI XM
chime(x) = chime
LA YF PY RE
playfair
DB XM XE
che(x)er = cheer
YA QO XM
alone(x) = alone

Question Set 3
OE XG
day(x) = day
OV QG
dog(x) = dog
ZS BI
ship
IB QG QX
pig(x)gy = piggy

Question set 4
CP IV DB AR LF LE QI
bletchleyparkx = Bletchley Park
DK IH XI LD BM OR
Bombemachine = Bombe Machine
DN OD CI DE TB QC
codebreakers
VK IM XF PA QV XE QM
tom(x)myflowers(x) = Tommy Flowers
KB YR PU VU VI
bil(x)ltutte = Bill Tutte
EK LO NR LE IO
j(i)oanclarke = Joan Clarke