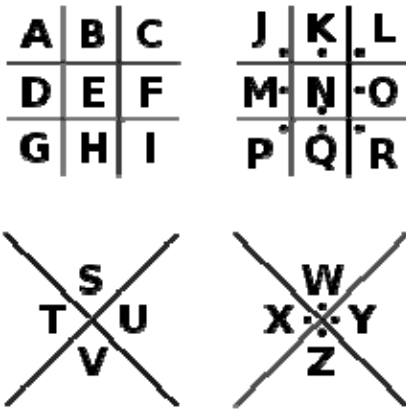# Cryptography Worksheet — The Pigpen Cipher

The Pigpen Cipher is a **Substitution Cipher** that was used by the Freemasons in the 18th Century. They substituted each letter of the alphabet with a picture.

Using the diagram on the left, can you decipher the two mathematical words below?

Discuss in pairs how the cipher works.

Write a short message of your own using the Pigpen Cipher, and ask the person sitting next to you to decode it.

How easy is it to work out what someone has written using this cipher? Can you think of any ways to make it harder?

Make your own "key" (a set of grids like that above) and encode a short message using your own cipher.

Teacher's Notes — The Pigpen Cipher

The Pigpen Cipher is an example of substitution ciphers that use images rather than letters, and is a good example due to the fact that it was used by the Freemasons, a society with an interesting history. It is sometimes known as the Freemason Cipher due to its heavy usage by the Freemasons.

It is a fairly simple cipher to use, where each letter is replaced by the lines and dots given by the position it sits in on the table.

For example, the letter A is given by ⌐ whilst N is substituted with the symbol ▣ and X is given by ⟩

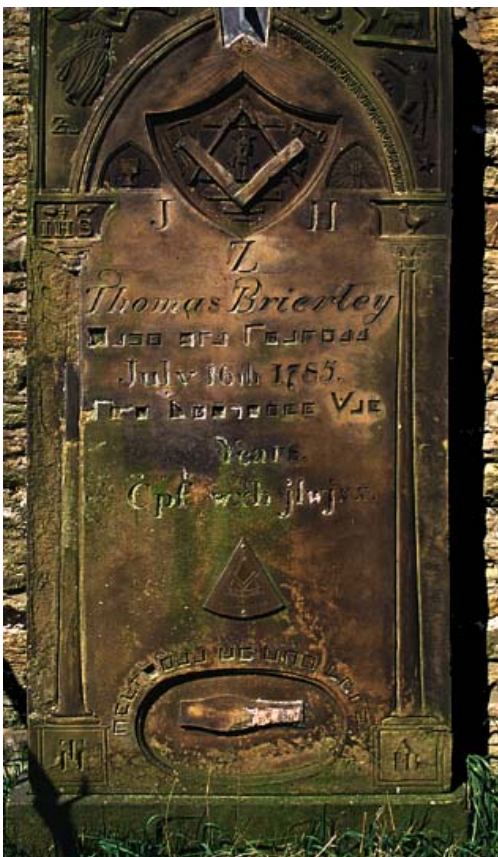⦎⌐⌐ ⌐⌐⌐⌐⌐⌐⌐⌐⌐⌐⌐ is Parallelogram.

⌐⟨⌐⌐⌐⌐⌐⌐⟩⌐⌐⌐⌐ is Quadrilateral.

This is a photo of the gravestone of Thomas Brierley, and is a good example of the use of the Pigpen Cipher by the Freemasons. Note the compass symbol at the top of the gravestone, a symbol of the Freemasons.

The inscription is hard to read due to weathering, but it appears to say "Thomas Brierley made his ingress July 16th 1785", which is presumed to be the date he joined the Freemasons. Notice the strange symbol for the letter S.

Like the Atbash Cipher, the code is fairly easy to break, since each letter is always substituted by the same symbol. Variants that have been used, is rather than the order grid, grid, X, X using the order grid, X, grid, X, or even grid, grid, grid, with a full stop in the missing place. Here we would use one dot in the second grid, and two dots in the third grid.

Another way of adapting the cipher, is to reorder the way the letters are put into the grids. Given these hints, the pupils should be able to come up with lots of different ways of doing very similar ciphers.