

MATHS

Enigma

Brief summary of activity:

This puzzle is named after and based on the famous Enigma code breaking carried out by Alan Turing at Bletchley Park during World War II. The user has to try to break a series of ciphers, each of which is more difficult than the last. In the process the way that ciphers function is explained.

Specific Curriculum Area:

Key Stage 3 Maths

Assessment Method:

One useful way that this activity could be assessed is for the teacher to ask students to keep a record of the message that they produce when they break the code. This can be compared against the correct message to see how accurate the user has been. In addition, pupils could be timed. Obviously, allowances would have to be made for the level of difficulty that has been attempted by the pupil.

Differentiation:

As this activity features 4 levels of difficulty, starting from a familiar, relatively easy code (letter shifting) the pupils themselves can decide what level they want to work at. So that if they solve the Level One code they can move on to subsequently harder code systems, whilst those who are experiencing difficulty can repeat the lower level codes until they are confident that they understand it fully. This is a very flexible activity in this regard.

Learning Outcomes:

Children will be able to: understand the principles involved in the creation of ciphers; understand the principles involved in the solving of ciphers; understand that some ciphers are harder to solve than others.

Use of Activity in a Lesson:

This activity could be used individually by students on a timed basis with the teacher setting it as a sort of race between students. It would be important that pupils did not share the answers with each other though, otherwise pupils could solve the codes too easily.

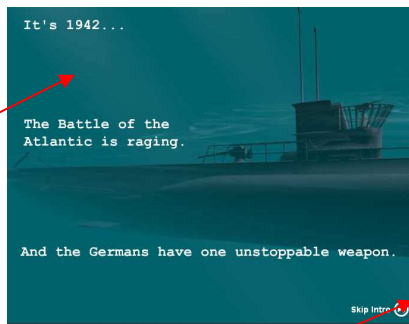
It is possible that this is an activity that would be best carried out using an Interactive Whiteboard with the whole class working as a group to solve the code. As this would foster a collaborative spirit it could prove to be an excellent team-building exercise.

Hints and Tips for Teachers:

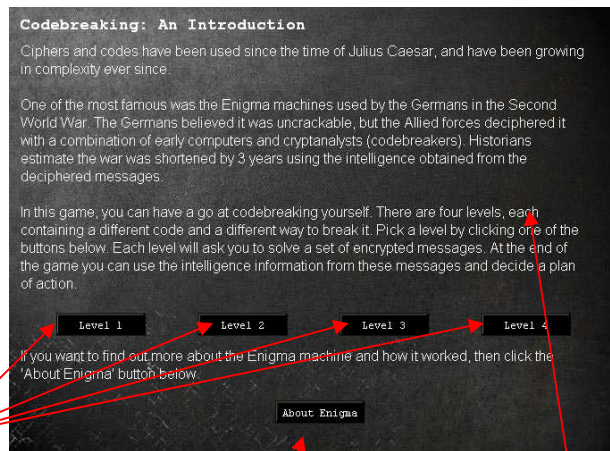
1. Ensure pupils begin at Level One
2. Ensure that pupils read the introductory text that precedes each code task.
3. Explain the difference between the unciphered text (shown in white lower case) and the ciphered text (shown in red capitals)
4. Pupils could be encouraged to use a pen and paper to scribble down their decisions as they go as the onscreen display will not store the letters they have tried unsuccessfully.

URL:

The Introductory screen sets the scene



Click here to move on

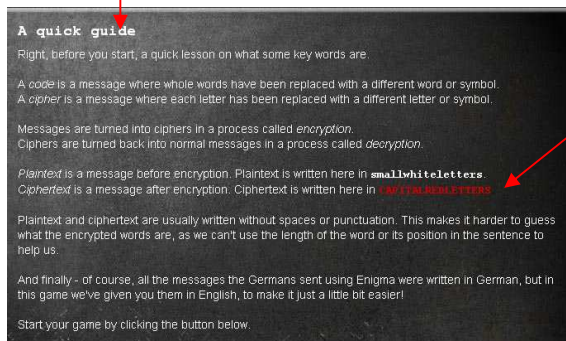


Choose a level

Further information

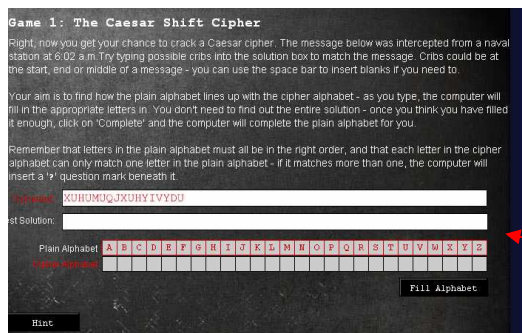
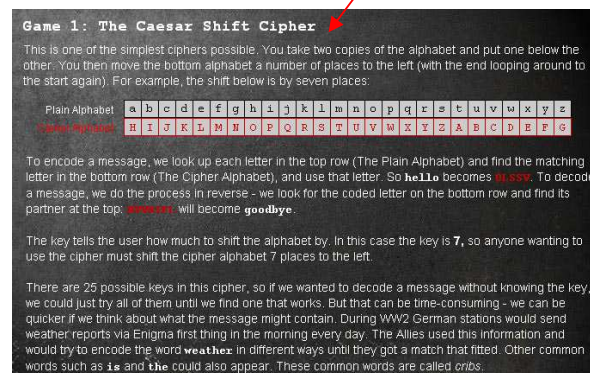
Introductory information

After choosing a level, explanatory screen appears



Important information about the way data is presented in this activity

How the chosen level of code works



Enter your solution here

Troubleshooting:

If pupils find a code too hard they should begin with Level One – they may have jumped to too high a level at the start. If pupils are unsure about what the ciphered text is they should be made aware that unciphered text is shown in white lower case, and the ciphered text is shown in red capitals.

Other Links:

<http://www.simonsingh.net/>