Breaking the code

A teacher resource pack with Bletchley Park, exploring poetry and WW2 history

Introduction
This resource is intended to support teachers in developing student knowledge and skills in English with cross-curricular links to History and Mathematics. The Poetry Society and Bletchley Park have compiled a suggested series of activities to enhance students’ understanding of poetry techniques, historical World War Two events and creative skills such as risk taking and collaboration. Further information about each organisation can be found at poetrysociety.org.uk and bletchleypark.org.uk

Bletchley Park: a background for teachers
Bletchley Park, once the top-secret home of World War Two Allied codebreaking, is now a vibrant museum and heritage attraction. Throughout World War Two, against seemingly impossible odds and in total secrecy, the Codebreakers at Bletchley Park systematically broke enemy ciphers and developed the world’s first computer to provide the Allies with vital intelligence. Perhaps best known for the breaking of the Enigma cipher, thought to be unbreakable, it is a site of exceptional historical importance and innovation. It played a major role in WWII, decrypting secret intelligence which had a direct and profound influence on the outcome of the conflict.

To help them decipher the codes, the team at Bletchley Park invented machines. Their efforts resulted in the creation of the world’s first programmable digital electronic computer, called Colossus. This was a huge machine that filled an entire room and needed several people to work on it.

At the peak of codebreaking efforts, around 10,000 staff worked at Bletchley and its outstations. About three-quarters of these were women. Since so many men were fighting in the war, women became an essential part of the workforce.
**Introduction to codes and ciphers**

The terms ‘code’ and ‘cipher’ are often used interchangeably. Technically, a code is a substitution of words or phrases, whilst a cipher is a substitution of individual letters or symbols.

German, Italian and Japanese ciphers were being decrypted at Bletchley Park. The rules of many of these ciphers changed daily – so when the team had broken it one day, they would have to start nearly from scratch the next.

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**Activity 1**  For discussion

- What is a code?
- Why might you send a message in code?
- Are all codes secret? Think about the Highway Code, Morse Code, computer codes and other picture codes, e.g. fire exit signs.
- Why might reading your enemy’s codes be useful?
- Why would you not want people to know that you have broken their codes?
- Have you ever used a code yourself in order to say something secretly or to hide something?

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**Activity 2**  Photos and illustrations

Look at the photographs (below and at the end of this resource) of Bletchley Park together and discuss what it might be like to work in this environment. Then show the illustrated images by Alex Leigh Whitworth and discuss how work at Bletchley Park took many forms. People there broke secret codes and ciphers by working alone and in groups: thinking, writing, arguing and testing ideas. When away from their shift work, staff would take a break by going for a walk, reading a book or listening to the radio.

Bletchley Park was a high-pressure environment, so many leisure activities and opportunities were available for workers, including concerts and dances. Dozens of Bletchley Park arts and social groups and societies were formed. The creativity that was at the root of their work life was also a key aspect of their off-duty time, with art, music, literature and dance exercising both mind and body.

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*Above: Section Hut 6, Machine Room Block D, c1944-45, at Bletchley Park, Buckinghamshire.*
Decoding words

Show the class some of the words overleaf, as a handout or on a white board or projector. Pair up students and ask them to suggest a definition for these words.

You will notice that the words are not all real ones – but they do have markers and common forms or patterns in them. For example ‘-ed’ or ‘-tion’ endings, or common prefix forms such as ‘dis-’, ‘pre-’ or ‘un-’. You needn’t tell the students at this stage that some are made-up words. Ask for their suggestions as to what kind of words they might be, or what they might mean. Could they be nouns? Verbs? Adjectives? Question words? Compound words? Onomatopoeic? Are there any words that look as if they belong together, or have common beginnings or endings? They can base this on instinct, imagination or their existing knowledge of grammar.

After a few guided guesses – do you think these are animals, food, action words, descriptive words, sound words like onomatopoeias? – distribute Activity Sheet 3. Small groups can work together to decide which words fit which clues, and why. Then share ideas. Any application of grammar knowledge is praiseworthy at this point – spotting patterns is the idea.

Students can access the ideas equally regardless of their language background. In fact students used to working in more than one language will already have skills in ‘codebreaking’ that may help them enormously. This exercise can be used with all ages and abilities.

(You don’t have to reveal this at this point, but three of these are in fact real words. Spragg and slibberslide are both old insults. Shocklach is a village in Cheshire and the word is Norman in origin: a warning to travellers that it may be dangerous to pass through.)

Activity 3

Codebreaking

In pairs, invite the students to break the codes in the Activity Sheets 1 and 2 below – feel free to give clues as this should not last long! The main clue is that the students are likely to know both texts. Tell them to look out for alliteration, patterns, rhymes, starting letters or sounds and use of capitals. Saying or singing it aloud will help students to guess the pattern. Hopefully they will guess Humpty Dumpty and Ba Ba Black Sheep!

Can students now assume that the theme of these codes is nursery rhymes? Ask them to guess the third coded poem.

The third poem is more difficult and involves numbers as well as letters. Invite pairs of students to join other pairs and form small groups. The solution is ‘One, two, three, four, five, once I caught a fish alive’. The alphabet is replaced with numbers (in order from 1 – 26), and vice versa.

Discuss as a whole class:
• What methods were used to break the code?
• What information was needed in order to break it?
Activity 4 Decoding words

Anchorbread

Santricle

Magoration

Trampessa

Boglin

Eppecci

Brossed

Phibbs

Co-pright

Aniss

Hadging

Birociss

Slibberside

Chupp

Birchbroth

Spragg

Undriffle

Undrifle

Strulle

Shocklach
Writing a poem is a bit like inventing your own code. People reading your poem need to work out for themselves what they think it means.

For this exercise each young writer will write an eight line poem (which could consist of two verses, of four lines each) aiming to use as many of the new words as possible. They can use the definitions and ideas decided by their group, or go their own way. Encourage your students to place the new words prominently in their poem, grouping them together in places for effect. Encourage the use of echoing sounds and patterns, alliteration and repetition.

Go back to the first three codes at this point. Notice how the ends of lines are key points in the structure. The students have two elements to combine: using the new words, and coming up with their own structure for a simple poem. Ask:

- Where can you use repeated sounds? (Anywhere!)
- Where would you expect phrases or words to be repeated? (Perhaps at the starts or ends of lines.)

Provide the opportunity to share work. It can be nerve-wracking to share a poem, especially if you think it may be ridiculed or criticised, and it is often hard to know how to listen constructively to the work of others. It might be useful to establish a few guidelines to ensure students listen to each other’s poems specifically, attentively and with encouragement. You could suggest they listen out for the following:

- Which new words did they hear being used, and how?
- What patterns did they notice in operation?
- Where did the patterns occur? Beginnings of lines? Ends of lines?
- How were the patterns made? Alliteration? Repetition? Other?
- Was there anything that they were particularly surprised by?
- What did they remember most or like best about what they just heard.

You may like to hand out Activity Sheet 4 to help prompt answers to these questions. Feedback can be done by individuals in small groups first, or to the whole class. After the students have shared their poems, it may be an appropriate time to reveal that most of the words (apart from three) were invented.

Illustration Alex Leigh Whitworth, courtesy of Bletchley Park.
Reflection on Skills

During World War Two, time for reflection and problem solving away from the task of codebreaking was as important for people as the codebreaking itself. This is also relevant today: everyone benefits from time to think and reflect away from rushing around in day to day life. Remember that the workers at Bletchley Park needed time to walk, talk, relax, read books, play games and also plenty of healthy food and sleep in order to do their job as codebreakers as effectively as possible.

Working in pairs, ask students to discuss what it felt like to do the different tasks and what skills or knowledge they felt they needed to complete them.

Each pair should make notes on what they discuss. They might list certain skills for codebreaking and others for poem-making. They could make two lists, and order each of these lists in order of importance to each task. Some students may recognise attitudes to learning, such as persistence and resilience. It could be useful to make a combined list as a class. Ask for suggestions as to which ones were most useful in their codebreaking and codemaking, such as:

- Imagination
- Concentration
- Knowledge of prefixes
- Knowledge of suffixes
- Confidence
- Ability to see patterns and shapes
- Ability to apply knowledge to a new task
- Willingness to make a mistake
- Willingness to sound silly
- Willingness to share knowledge
- Knowledge of English
- Knowledge of any other language
- Knowledge of poetry
- Knowledge of songs
- Love of words

At Bletchley Park a huge range of knowledge and skills were brought to the task of codebreaking. In the end it was perhaps the ability to combine all that knowledge and skill with imagination and daring that meant they were finally able to break an ‘unbreakable’ code. In poetry, it is also knowledge and skill combined with imagination and daring that enables the poet to write, and an incisive reader to gain meaning from it.
Can you work out which popular poems have been written in a coded form? Are there any patterns which might help someone to recognise them?

Poem 1
Hedgerow Dumpling stir off a wear
Hedgerow Dumpling heard a game fair
Arm tree klang hero
Add axe tree tank mile
Cooking-pot Dumpling tempura awhile.

Poem 2
Pretty-Pretty Pink Shoes
Can you climb a wall?
Heel-toe, heel-toe, but I sometimes fall.
Once doesn’t matter,
Once on my head,
I wish I had some trainers to wear instead.

Illustration Alex Leigh Whitworth, courtesy of Bletchley Park.
Can you work out which poem has been encrypted here? What’s the pattern?

A, B, C, D, E,
1–12–9–22–5 !

F, G, H, I, J,
Stuck on the strange words? Here are some clues to help you…

- One of the words is a colour.
- One of the words is borrowed from Dutch / Japanese – use your imagination.
- One of the words is a compound noun.
- One of the words used to be common, but is old-fashioned now.
- One of the words is insulting/unpleasant.
- One of the words is a noun from the natural world.
- One of the words is for an invention that is still a secret.
- One of the words is a place name.
Reading back, sharing ideas and listening out

Which new words have you heard being used, and how?
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__________________________________________________________________________

What patterns did you notice in operation?
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__________________________________________________________________________

Where did the patterns occur? Beginnings of lines? Ends of lines?
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__________________________________________________________________________

How were the patterns made? Alliteration? Repetition? Other?
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Was there anything that you were particularly surprised by?
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What did you remember most or like best about what you just heard?
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Bletchley Park images

Block C, the Freeborn Punch Room and Verifier bay, Bletchley Park.

Section Hut 6, Machine Room Block D, Bletchley Park.

Traffic Identification, Hut 6 Section, Block D, Bletchley Park.

All photographs c1944-45.
Bletchley Park illustrations by Alex Leigh Whitworth  COURTESY OF BLETCHLEY PARK