

**Grade level:** UK, Year 4  
US, Middle School Grades

**Summary:**

“Be like Dad – Mum’s the Word!” In this top secret lesson, students learn about codes used during WWII and the Cold War. They encode and decode messages, beaming top secret communication using Dana by AlphaSmart. While written for students in the United Kingdom, students from the USA might extend to lesson to include a study of the Navajo Code Talkers.

**Technology tools:**

Dana by AlphaSmart or Dana Wireless.  
(Note: This lesson is adaptable to use with the AlphaSmart 3000.)

**Internet sites:**

Known codes

<http://www.codesandciphers.org.uk>

History of Anne Frank

<http://www.annefrank.eril.net>

WW II Poster

<http://www.wkac.ac.uk/poster/imagebank/keepmummultiple.htm>

Morse Code

<http://www.babbage.demon.co.uk/morseabc.html>

Deaf/blind international signing codes

<http://www.deafblind.com/worldsig.html>

Dance notation

<http://dancenotation.org/DNB>

Simulated Enigma machine

[http://homepages.tesco.net/~andycarlson/enigma/enigma\\_j.html](http://homepages.tesco.net/~andycarlson/enigma/enigma_j.html)

**Additional resources:**

1. Word search featuring code and cipher jargon. For example, use words such as:

Break	Colossus	Decode	Morse Code	Transmit
Cipher	Crack	Encrypt	Secure	
Code	Decipher	Enigma	Spy	

2. Alphabet strips to lay next to each other for simple codes. For example:

Original → a b c d e f g

Code → v w x y z a b

3. Short words and messages on paper strips suitable for pupils to send. Use phrases such as: “Plane midnight Monday,” “boat rescue at dawn” and “Frank family found.”

### Step-by-step tasks:

1. Use word search puzzles to build word knowledge and “set the scene.”
2. Warm up with a simple code. Keep all spaces and punctuation in tact, but with a 2 letter “slip.” For example, every “a” in your original word will be represented by a “c,” every “b” represented by a “d,” etc. Encode the term “Normandy” as a group. Make sure all students understand the encoding process (each student’s coded version of “Normady” should match.) For more activities, see Extension idea #1.
3. Work in small groups. Give each group an uncoded message to encode. Be sure students keep the message secret. They must keep it secret from the other groups – they do not know who is friend or foe!
4. Students use Dana’s AlphaWord word processor to enter their secret messages.
5. They beam message to their ‘allies’ who then decode it. In return the allies send their message to be decoded. On the whole either the message will make sense when decoded (successful decoding) OR it will not make sense so the recipients will return to their sender for verification. For more activities, see Extension idea #2.

### Extension ideas:

1. Pupils are encouraged to create their own codes and create the coding pattern and decoding pattern, if different, to share with their "allies".
2. Pairs of groups (allies) have the same codes, but in the whole class there are several codes. As well as beaming the message to the "allies" they beam to the "enemies" who should not have the code, but may be able to break the code.
3. Pupils describe their chosen code and why they made the decision as what to do.
4. Pupils extend learning by investigating other coded messages of all sorts – include Morse code, deaf and dumb sign languages.
5. The Enigma simulation could be displayed on a whiteboard or otherwise used either to extend or as a further stimulus – a sort of second starter
6. The message sending could be coded so that if a group's allies correctly decode their message they get 40 points. If an enemy group decodes successfully, they lose 10 points per group.
7. Some discussion of language characteristics to aid detection of simple ‘replacement’ codes. EG, the only one letter words are A and I; ‘the’ and ‘and’ are the most common 3 letter words, and because words such as ‘there, their, then have ‘the’ at the beginning. E is the most common letter in English, least common Z, Q, j etc.
8. Students in the US might explore coding used by Native Americans serving in WW II.

**Home-to-school connection:**

1. Web sites listed may be used at home or in local libraries.
2. Students could email each other in code.
3. Students could combine this with a collaborative email project with another school.
4. Students may interview a family member who was living during WW II about the need to stop enemies from locating information.
5. Students may find out about codes related to their out of school activities, e.g., the dance notation, musical scores, signing (deaf), barcodes in shops.