

## Molly Brown House Museum

### Ciphers in World War I

Both Margaret and Larry Brown took part in World War I. Larry served in the Army and was wounded at the Hindenburg line. He spent time recovering with the Astors in London. Margaret traveled to France to work for the American Committee for Devastated France.

Armies used codes and ciphers to send secret messages back and forth during World War I. Breaking a cipher without having the 'key' is difficult. The main tool is the use of a frequency list. Some letters are used more frequently than others in words. The letter used most often is "E" and the least common letter is "Z". The order of letter frequency is:  
ETAOINSRHDLUCMFYWGPBVKXQJZ.

Replace the frequently used letters in the cipher with the most commonly used letters. Using the frequency list will help to solve the puzzle, then the rest of the letters will need to be tried in different combinations until the message makes sense.

### Create Your Own Cipher

#### Materials:

- Cipher disk
- Metal fastener
- 3 x 5 cards
- Scissors
- Pens/Pencils

#### Make a Cipher Disk:

- Cut out the Cipher Disks on page 3
- Place the small disk on top of the larger disk; attach with a metal fastener.

#### Encrypt a message:

Choose a letter from the small disk—this will be used as the KEY. Line up the KEY with the letter A on the large disk. You are now ready to encrypt a message. Note: Do not move the wheel as you write your message.

Example: If the KEY letter is N, then the letter A (on the big disk) would equal the letter N. A=N, B=M, C=L, etc. In this example the name BILL would be written as: MFCC.

Using your cipher disk, practice by writing your name in code. Then write a message using the cipher disk. Share the KEY letter with a friend (ex: letter N) who also has a cipher disk. They can decipher the message and you can communicate secretly to each other!

Now it's your turn! Decode the messages below by using your Cipher! Share your finished results on Facebook or email to [education@mollybrown.org](mailto:education@mollybrown.org) and you could be featured in a special online exhibit!

**Decode the Message! Hint: Key Letter is N (Answers are on last page)**

1. FUFVJNVPUZMWJNDUGJLZKJ
  
2. BNWHNWJUMWZRAVTWSFSJKUGJUFUNAFI
  
3. UGJPVUWTLDHZCKFALZCZWNKZ

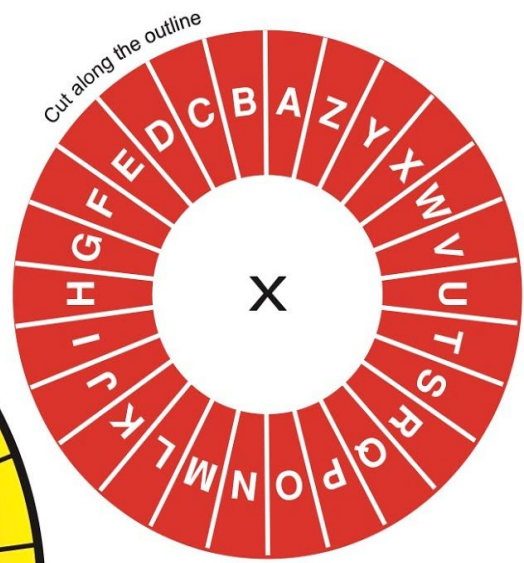
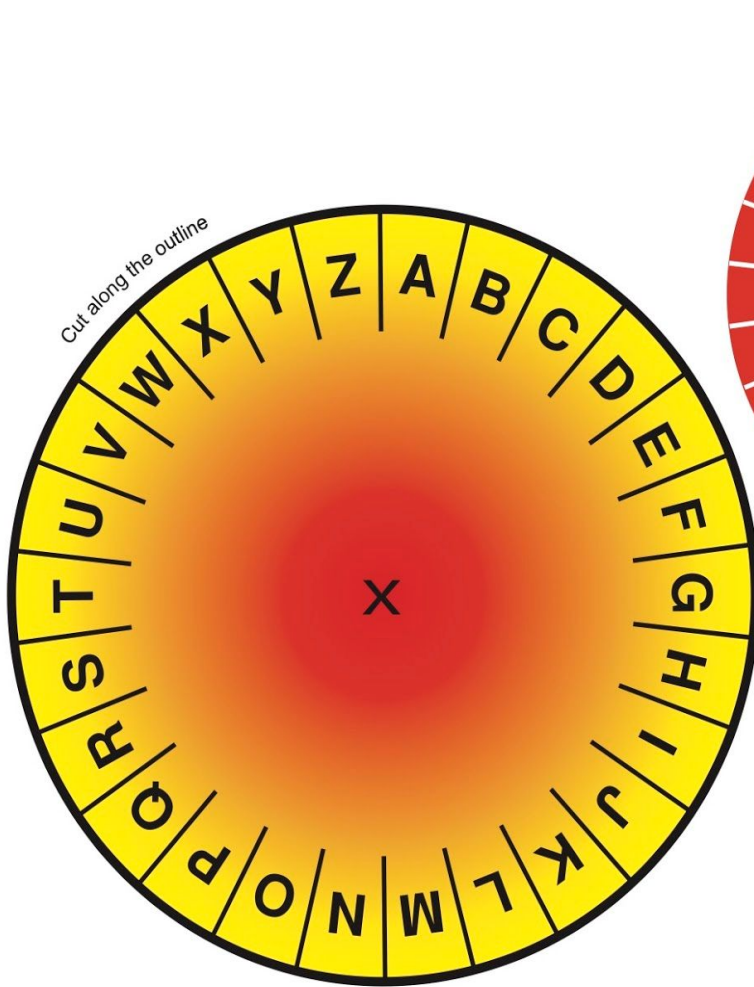


Image from the National Security Agency  
[www.nsa.gov/change/cipherdisk.shtml](http://www.nsa.gov/change/cipherdisk.shtml)

Answers:

1. It is easy to break the code
2. Margaret Brown survived the titanic
3. They struck gold in Colorado