Cryptanalysis Hints

Use these hints that the experts use along with the "Frequency Counter Software" to decipher ciphertext.

As well as the analysis of letter frequencies, other patterns can also be detected that may help to decipher a piece of ciphertext.

The following text explains some of the clues that can be used to deduce a word or a letter in a piece of ciphertext. If you scroll further down the page, you will see a list of tables that explain letter frequencies and patterns in the English language.

Identify Common Pairs Of Letters: If the ciphertext appears to encode a message in English, but the plaintext does not reveal itself immediately, which is often the case, then focus on pairs of repeated letters. In English the most common repeated letters are ss, ee, tt, ff, ll, mm and oo. If the ciphertext contains any repeated characters, you can assume that they represent one of these.

Identify The Smallest Words First: If the ciphertext contains spaces between words, then try to identify words containing just one, two or three letters. The only one-letter words in English are a and I. The most common two-letter words are **of, to, in, it, is, be, as, at, so, we, he, by, or, on, do, if, me, my, up, an, go, no, us, am**. The most common three-letter words are the and and.

Tailor Made Frequency Tables: If possible, tailor the table of frequencies to the message you are trying to decipher. E.g., military messages tend to omit pronouns and articles, and the loss of words such as I, he, a and they will reduce the frequency of some of the commonest letters. If you know you are tackling a military message, you should use a frequency table generated from other military messages.

Play The Guessing Game: This can be one of the most useful skills for a cryptanalyst to employ - the ability to identify words, or even entire phrases, based on experience or sheer guesswork. Al-Khalil, an early Arabian cryptanalyst, demonstrated this talent when he cracked a Greek ciphertext. He guessed that the ciphertext began with the greeting 'In the name of God'. Having established that these letters corresponded to a specific section of ciphertext, he could use them as a crowbar to prise open the rest of the ciphertext. This is known as a crib.

Letter and word frequencies have been analysed in a number of different languages. A few of the most commonly used ones are listed below, and may help you to decipher your secret messages…

Order Of Frequency Of Single Letters	E T A O I N S H R D L U
Order Of Frequency Of Digraphs	th er on an re he in ed nd ha at en es of or nt ea ti to it st io le is ou ar as de rt ve
Order Of Frequency Of Trigraphs	the and tha ent ion tio for nde has nce edt tis oft sth men
Order Of Frequency Of Most Common Doubles	ss ee tt ff ll mm oo
Order Of Frequency Of Initial Letters	T O A W B C D S F M R H I Y E G L N P U J K
Order Of Frequency Of Final Letters	E S T D N R Y F L O G H A K M P U W
One-Letter Words	a, I
Most Frequent Two-Letter Words	of, to, in, it, is, be, as, at, so, we, he, by, or, on, do, if, me, my, up, an, go, no, us, am
Most Frequent Three-Letter Words	the, and, for, are, but, not, you, all, any, can, had, her, was, one, our, out, day, get, has, him, his, how, man, new, now, old, see, two, way, who, boy, did, its, let, put, say, she, too, use
Most Frequent Four-Letter Words	that, with, have, this, will, your, from, they, know, want, been, good, much, some, time

Taken from : https://www3.nd.edu/~busiforc/handouts/cryptography/cryptography%20hints.html