Key length: 2
Key: KS
Decrypted Text: CAESARSWIFEMUSTBEABOVESUSPICION

Key length: 3
Key: KEY
Decrypted Text:
FORTUNEWHICHHASAGREATDEALOFPOWERINOTHERMATTERSBUTESPECIALLYINWARCANBRIN
GABOUTGREATCHANGESINASITUATIONTHROUGHVERYSLIGHTFORCES

Key length: 4
Key: IWKD
Decrypted Text: EXPERIENCEISTHETEACHEROFALLTHINGS

Key length: 5
Key: KELCE
Decrypted Text: IMAGINATIONISMOREIMPORTANTTHANKNOWLEDGE

Key length: 6
Key: HACKER
Decrypted Text:
EDUCATIONISWHATREMAINSAFTERONEHASFORGOTTENWHATONEHASLEARNEDINSCHOOL

[Optional] Key length: 7
[Optional] Key: NICHOLS
[Optional] Decrypted Text: INTELLECTUALSSOLVEPROBLEMSGENIUSESPREVENTTHEM

Discussion:
In general, computational complexity of brute force attacks: $O(m*c^n)$, where n is the key length, m is the complexity of testing one key, c is the number of difference choices for each key character. That is, in naïve brute force, the average time required to break an encryption increases exponentially with the key length. In our experiment, c=26.
To test one key, the most time-consuming operation is to locate if the decrypted word is in the dictionary. If binary search is used, the time complexity of testing one key could be considered $O(\log d)$, where d is the length of the dictionary. The time complexity could be reduced to constant time, if a hash table is used.