Model 1 Random Substitution

You have likely decoded "secret messages" that simply used a different letter for each letter of the alphabet. These types of encryption schemes can be broken easily using frequency analysis. For example, we know that the letter E typically appears most frequently in English, followed by the letter T. Consider the following quotation, encrypted using a random substitution:

PXL QLHP PXABCH AB OAGL KML GMLL

Questions (10 min) Start time: _____

1. Count the frequency of each letter in the above quotation.

a) Which letter appears the most often?

b) Which letter(s) appears the second most often?

c) Which letter(s) appears the third most often?

2. Now consider commonly used English words.

a) What are some commonly used three-letter words?

b) What are some commonly used two-letter words?

c) Based on your answers to the above two questions, and using trial and error, decrypt the above quotation.

d) Discuss as a team the process you just used to decrypt the message, and describe it here.