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**Worksheet HILL CIPHER**

Example: Encode the message **CALCULUS** with the matrix

1. Convert letters into numbers
2. Multiply by A
3. Convert into letters: **EGUPDAWC**

To decode

1. Convert letters into numbers
2. use A-1 to multiply:=
3. Convert numbers into letters and read out the message:

**Problems:**

1. In the example of coding the work CALCULUS, the letters L encode to different letters in cipher. Explain, why did this happen?
2. If one wants to encode a word with odd number of letter, typically just add any letter in the end. Are there any restrictions?

(Hint: Decode the word: **EGHL**)

1. Write a short message (approximately 6-10 letter) and encode it using the matrix
2. Switch with your classmate and decode her/his message.
3. What happens if you encode with the matrix?