# Codons

Trains: nested and variable for-loops

## Counting codons

The following program prints codons:

bases = ['A','T','C','G']  
for b1 in bases:  
 for b2 in bases:  
 for b3 in bases:  
 print(b1+b2+b3)

Modify the program so that the codons are numbered. The output should be

1 AAA

2 AAT

and so on.

What is line 47 of the output?

Answer: 47 CGC

## A subset of codons

Modify the preceding program so that it only outputs codons which

1. Have the same first and second bases, or the same second and third bases

AND

2. Do not have three of the same bases.

The output should be like

1 AAT

2 AAC

....

24 GGC

What is line 19 of the output?

Answer: 19 GAA