

# Exercise 1

Write a step-by-step plan to find the GC content of the first gene of *E.coli*. Write it in English.

- 1.) Finding *E.coli* genome genes.
  - a.) how do we find it?
  - b.) which one?
- 2.) Finding the first gene of *E.coli*
  - a.) What is the “first gene”? near the replication origin?
  - b.) Which strand?
  - c.) How do we find a gene?
- 3.) Calculating every nucleotide's numbers (For instance, 10 of A, 5 of G, 7 of T, 8 of C)
  - a.) let's assume that the gene/genome is in a vector V
  - b.) use the **table()** function
- 4.) Then calculating with the GC formula

GC formula:  $(G+C)/(A+T+G+C)$

$$(5 + 8)/(10 + 7 + 5 + 8) = 13/30 = 0.43$$

- I think firstly we should find *E. coli* genome
- and then we should first genome of e. coli
- then calculate all nucleotides
- Finally, we can find the solution using the GC formula.