BI694
Bioinformatics & Phylogenetics

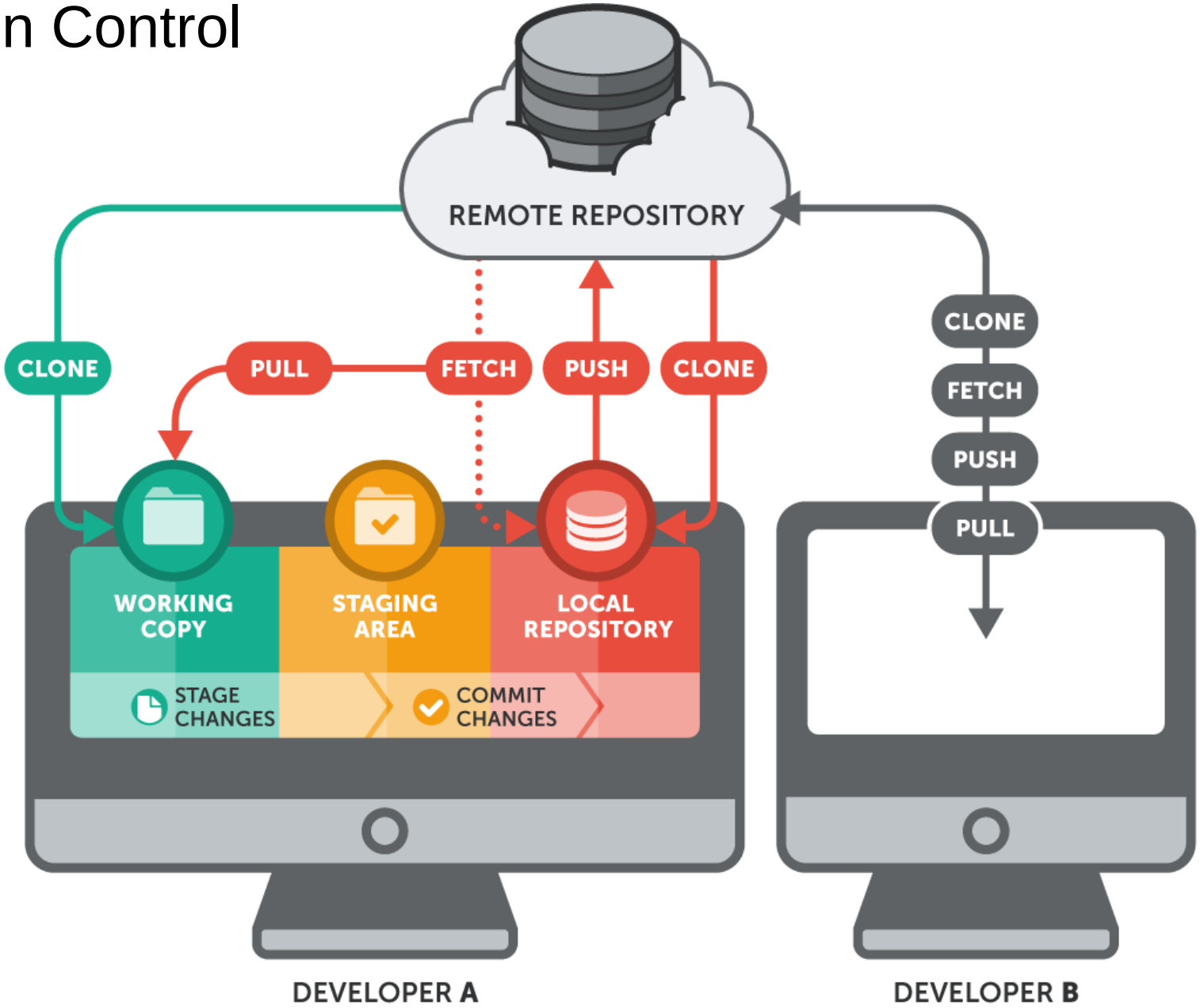
Winter Semester 2017

WEEK 6

Python Programming: BioPython

Genetics 101

git – Version Control



git – Version Control

```
$ git fetch      # should download f les without merging remote and local f les
$ git pull       # downloads remote and merges these with the local f les
```

What should you do?

```
$ git stash          # run the stash command in your folder to set your modif ed aside
$ git pull           # pulls f les from the cloud into your local folder and merges remote with local;
                     # this may overwrite changes you made in you local folder
$ git stash pop      # overwrite f les that came from upstream with the f les you set aside earlier
```

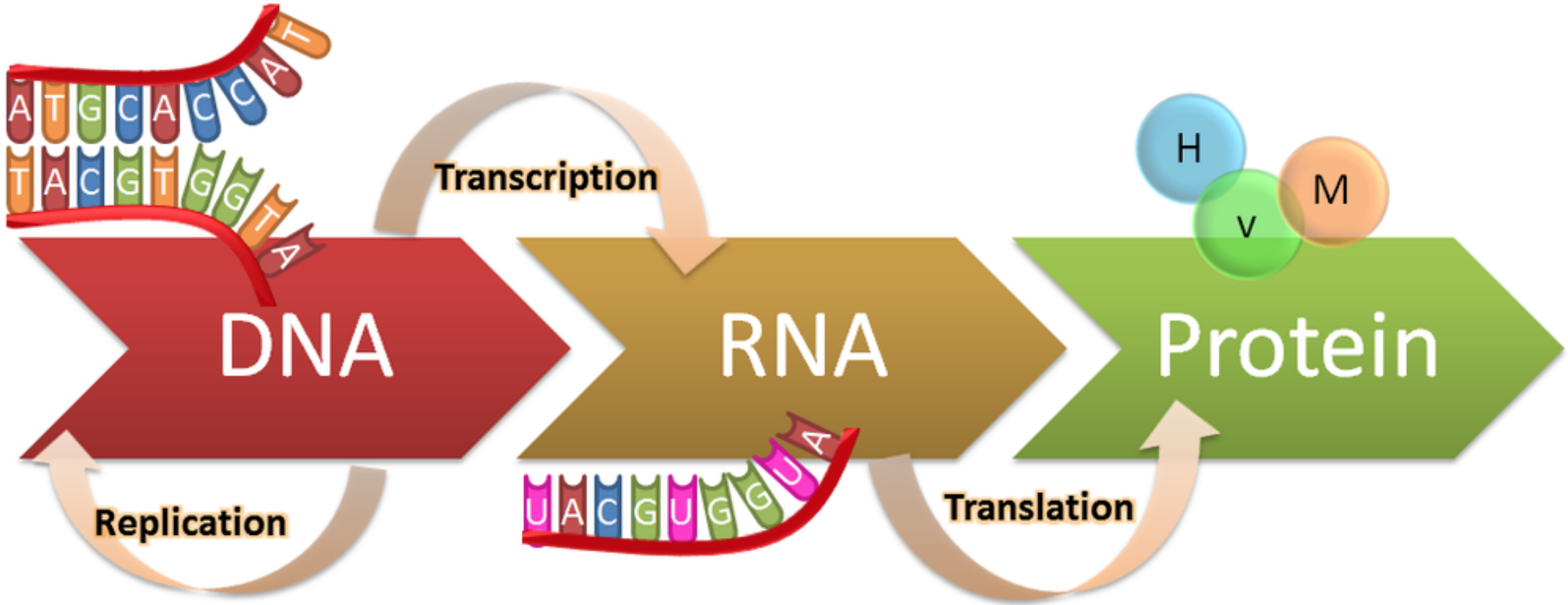
Install BioPython – we will need it later

```
sudo apt-get install python-biopython
```

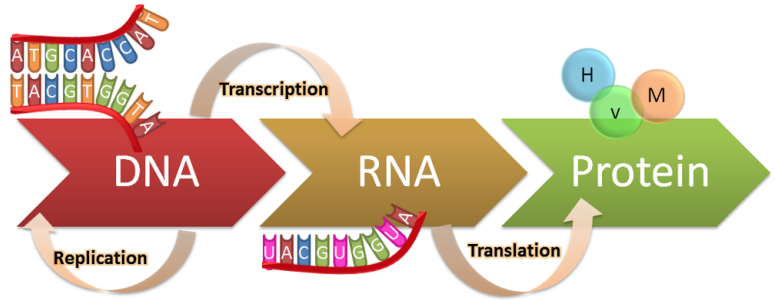
Reading a File using a While Loop

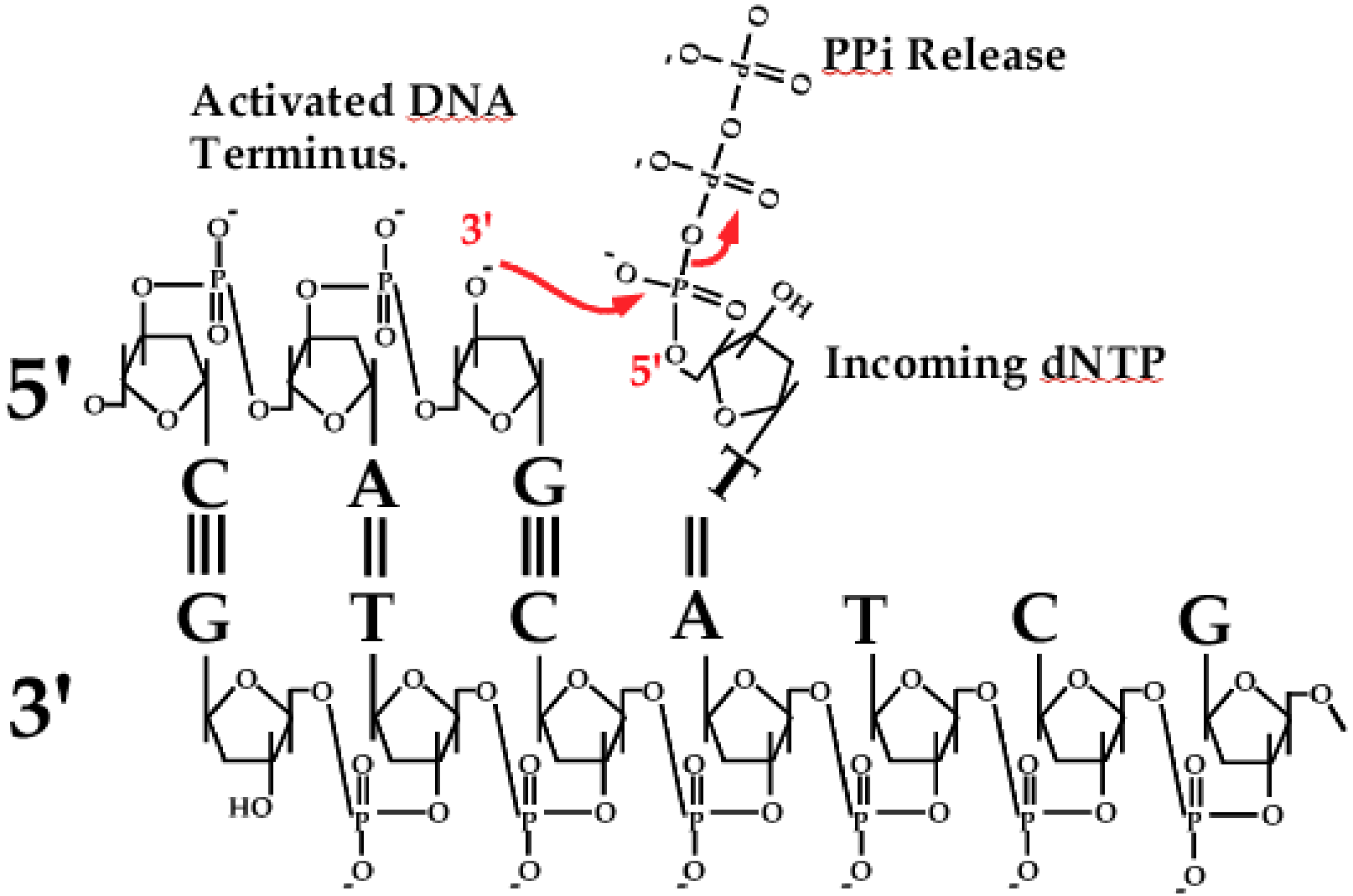
```
Line = File.readline()
while Line:
    do something
    Line = File.readline()
```

DNA RNA Protein

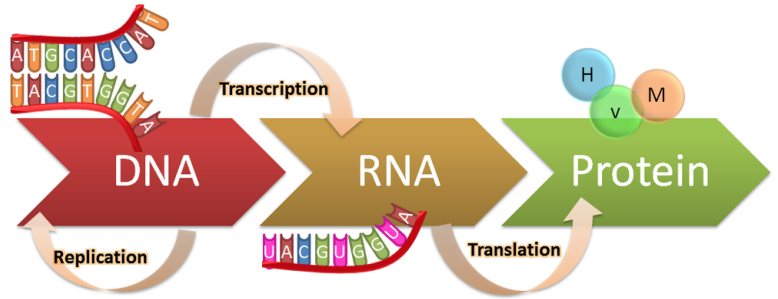


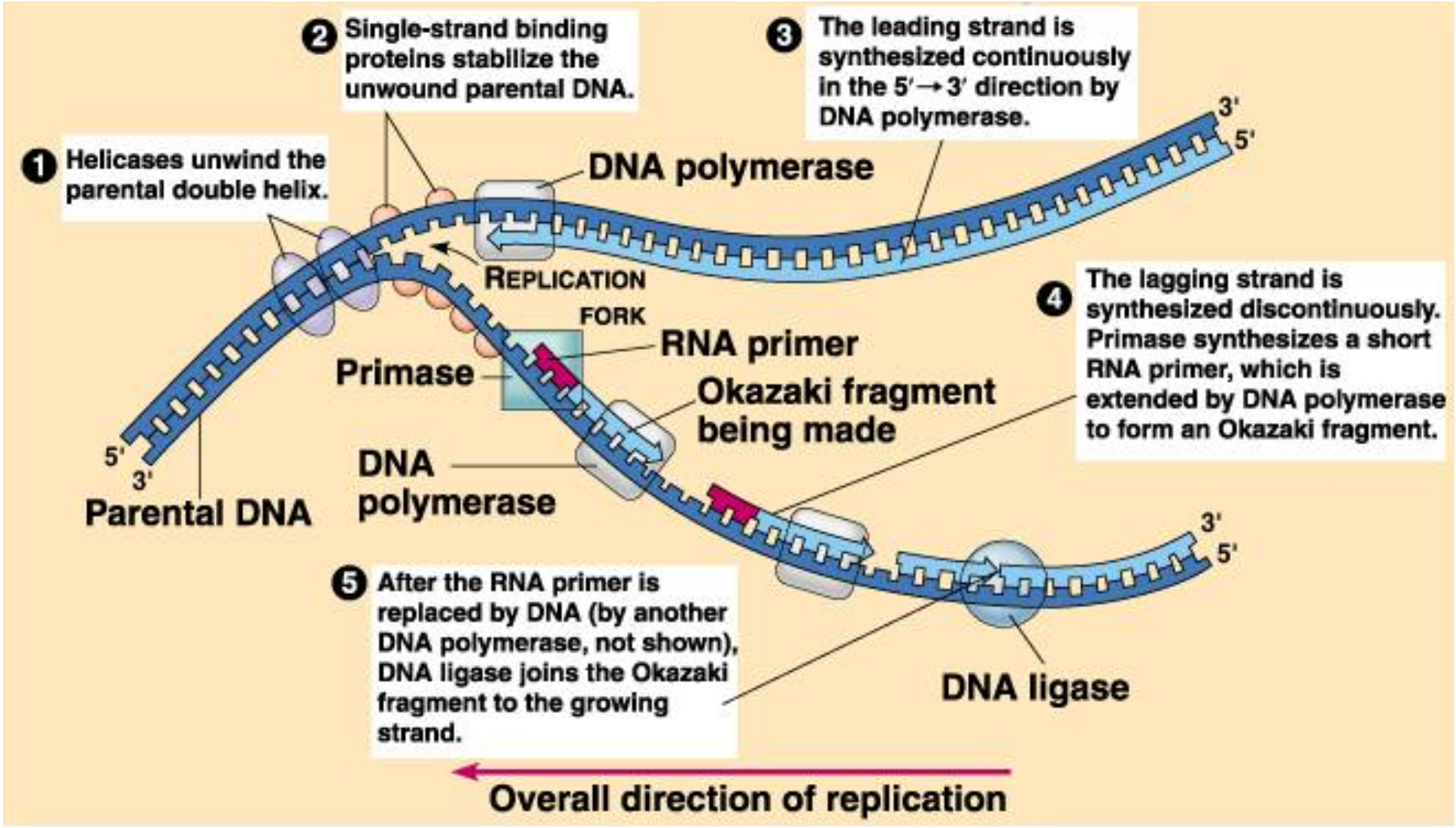
DNA Replication



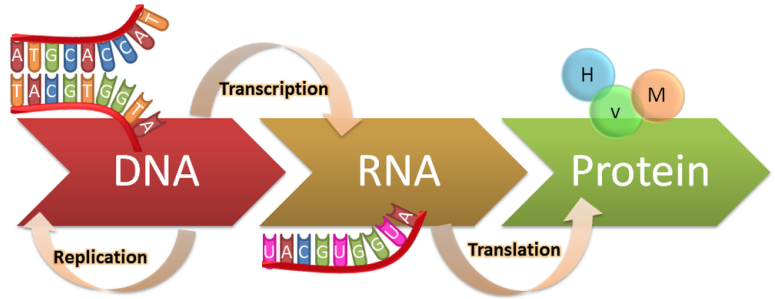


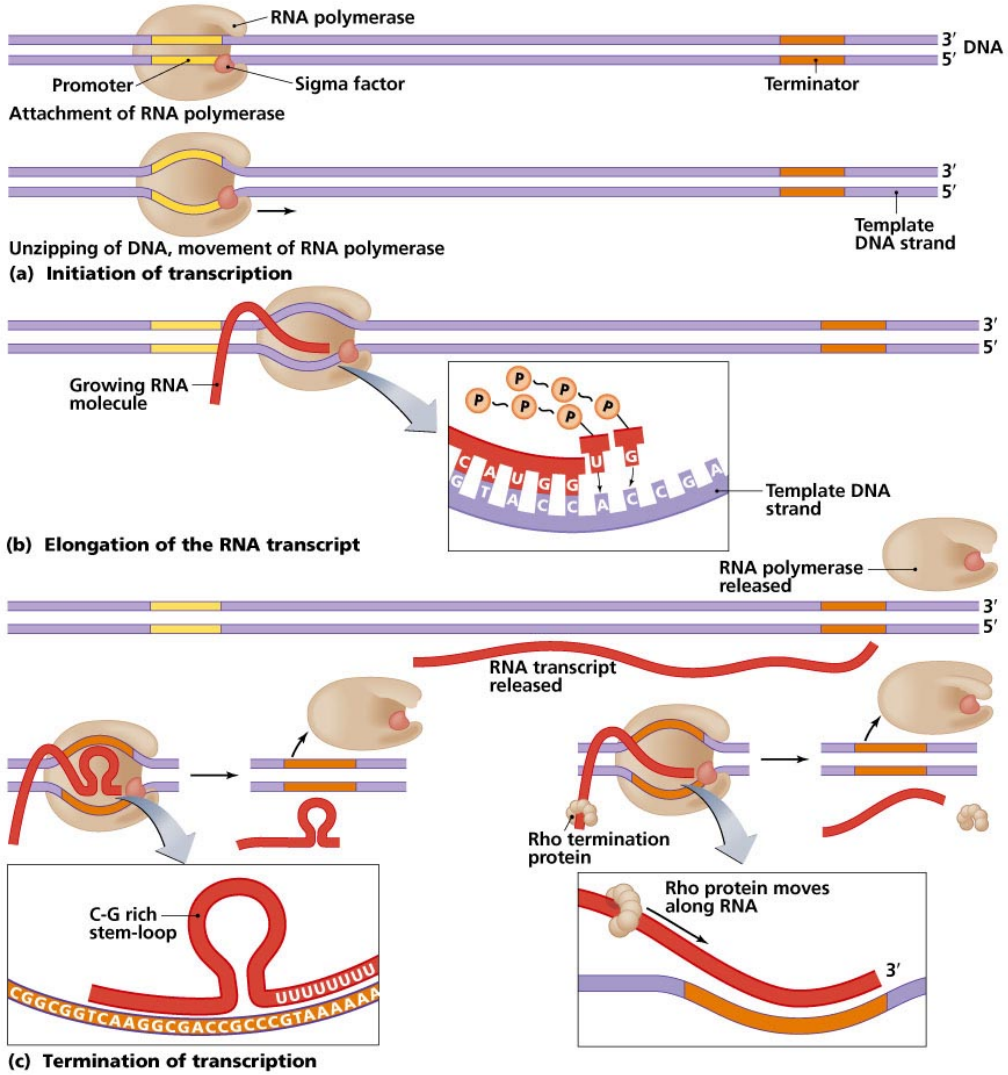
DNA Replication



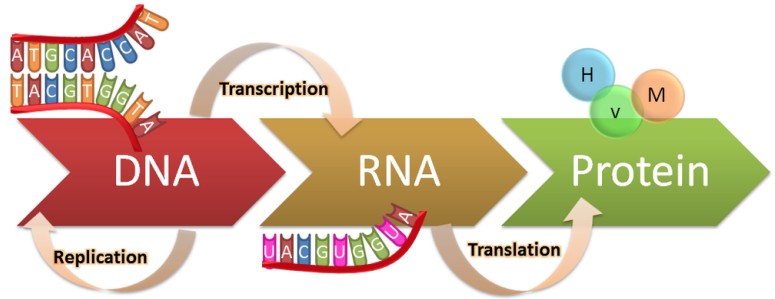


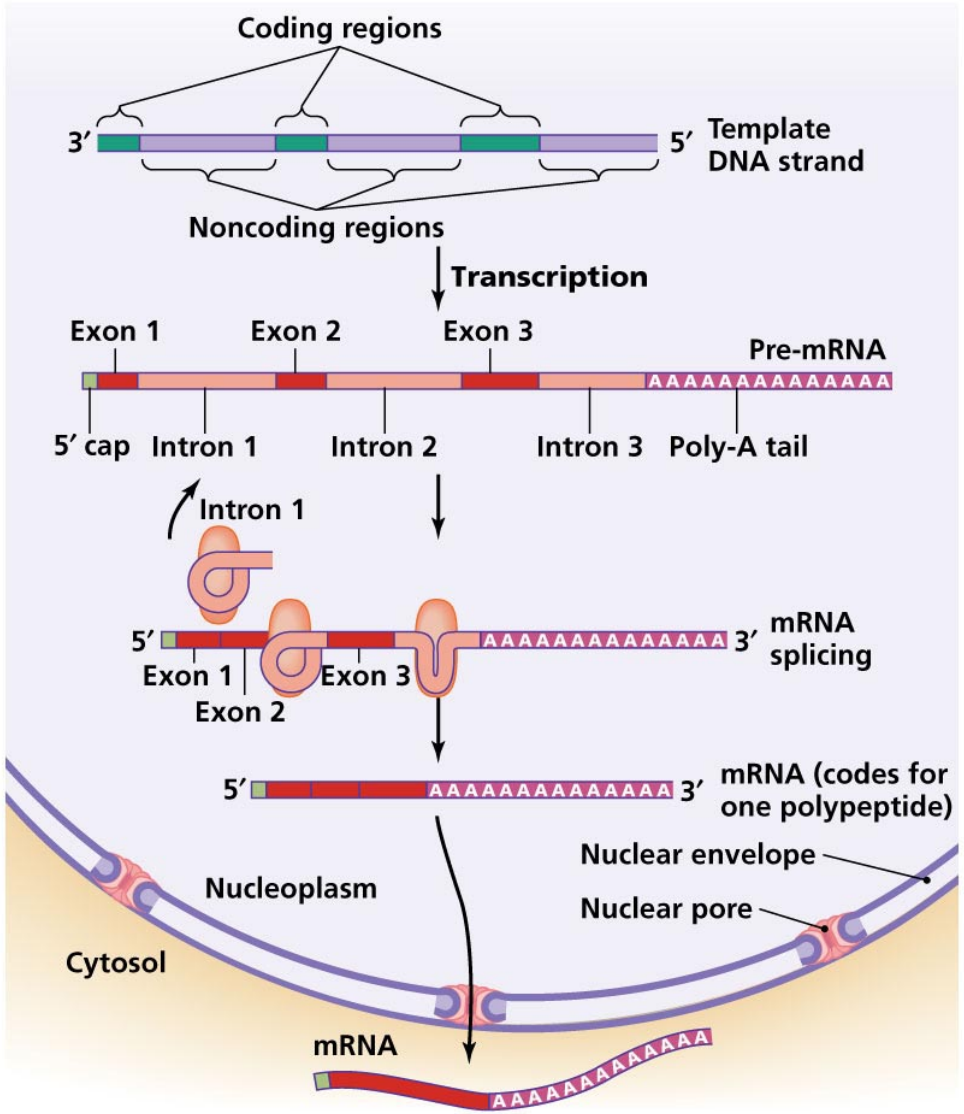
RNA Transcription



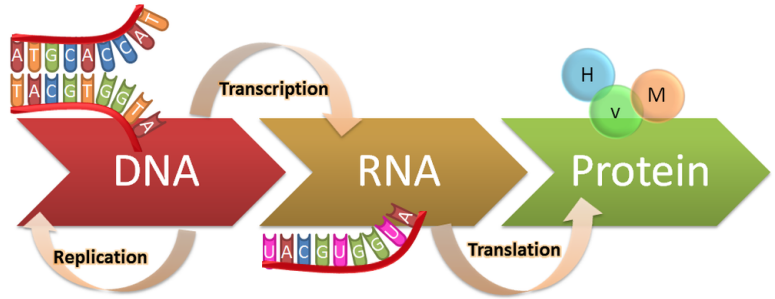


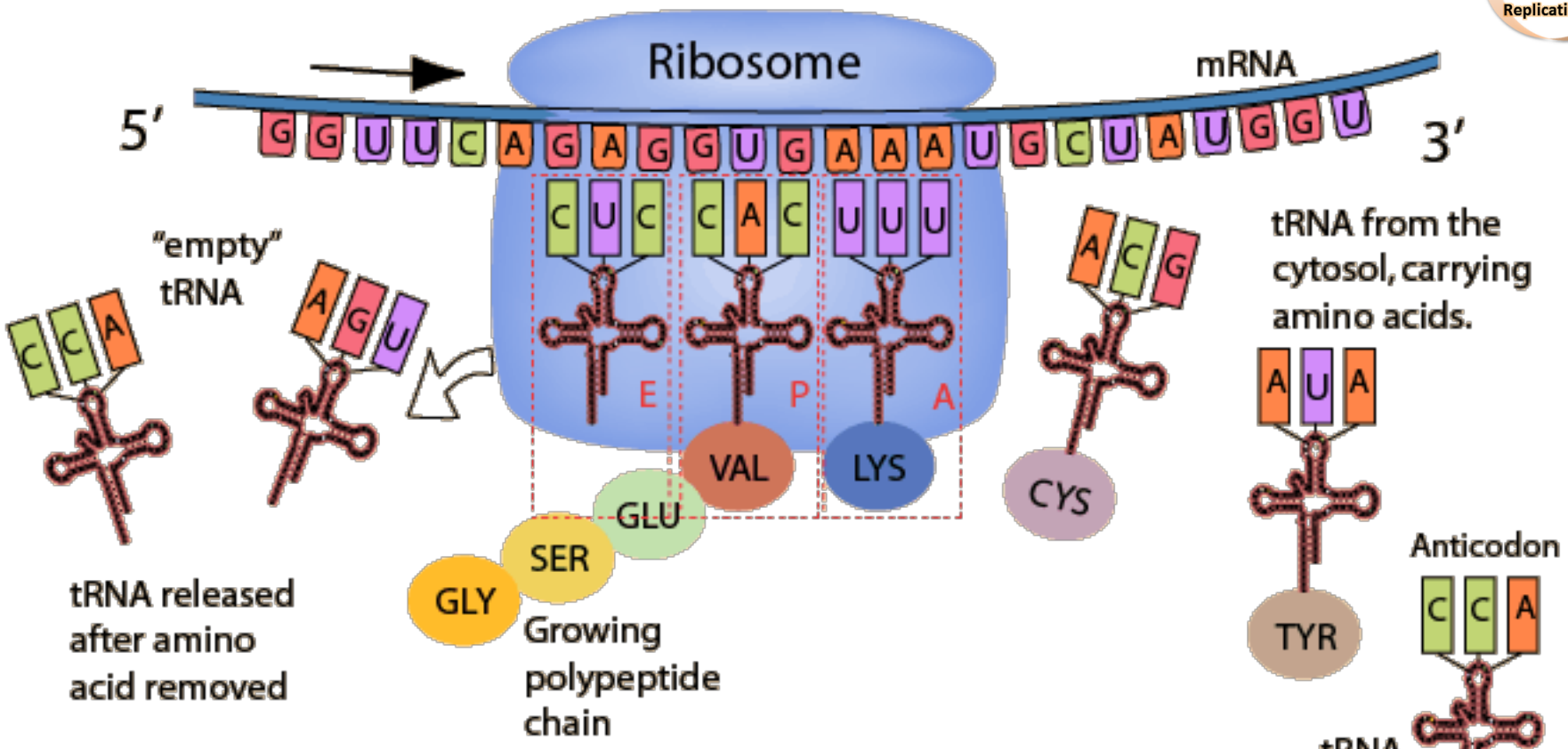
RNA Transcription





RNA Translation





The translation process incorporates 20 different amino acids in the precise sequence dictated by the three-base codons built from and alphabet of four bases. The process in the ribosome builds the polypeptide chains tha will become proteins.

BioPython – let's work through some examples

http://biopython.org/wiki/Seq