Name: \_\_\_\_\_\_\_\_\_\_\_

**Main Ideas Title: Translation mRNA 🡪 Protein** Period: \_\_\_ Seat:\_\_

Translation on Must always transcribe before you can translate

Paper \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Central Dogma: \_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

DNA: **TACTCTGGATTCAGCCAAGCTATC**

mRNA:

protein:

Significance of Builds protein to exact specifications of DNA instructions.

Translation \*exact size and shape

What determines size and shape?

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Where does it On a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_in the cytoplasm

take place? Ribosomes provide a location for all necessary parts for building a protein to assemble

The ribosome up Made of rRNA and proteins

close Key features: - 2 subunits, large and small

\*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- 3 binding sites- A, P, E

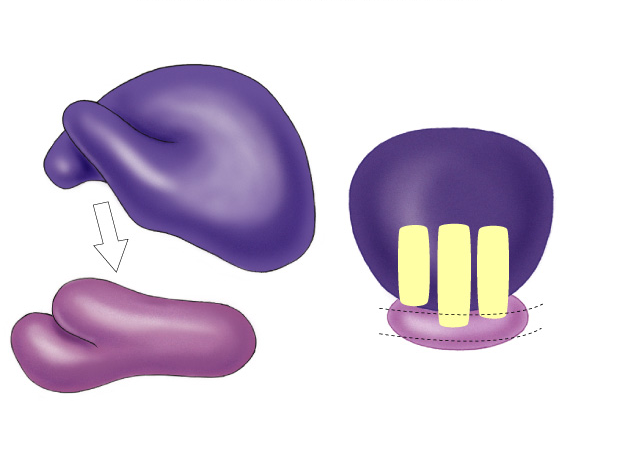
\*A- holds next tRNA in line to drop off its amino acid

\*P- Site where tRNA connects its amino acid to the growing

polypeptide chain

\*E- exit site once the tRNA has dropped off its amino acid





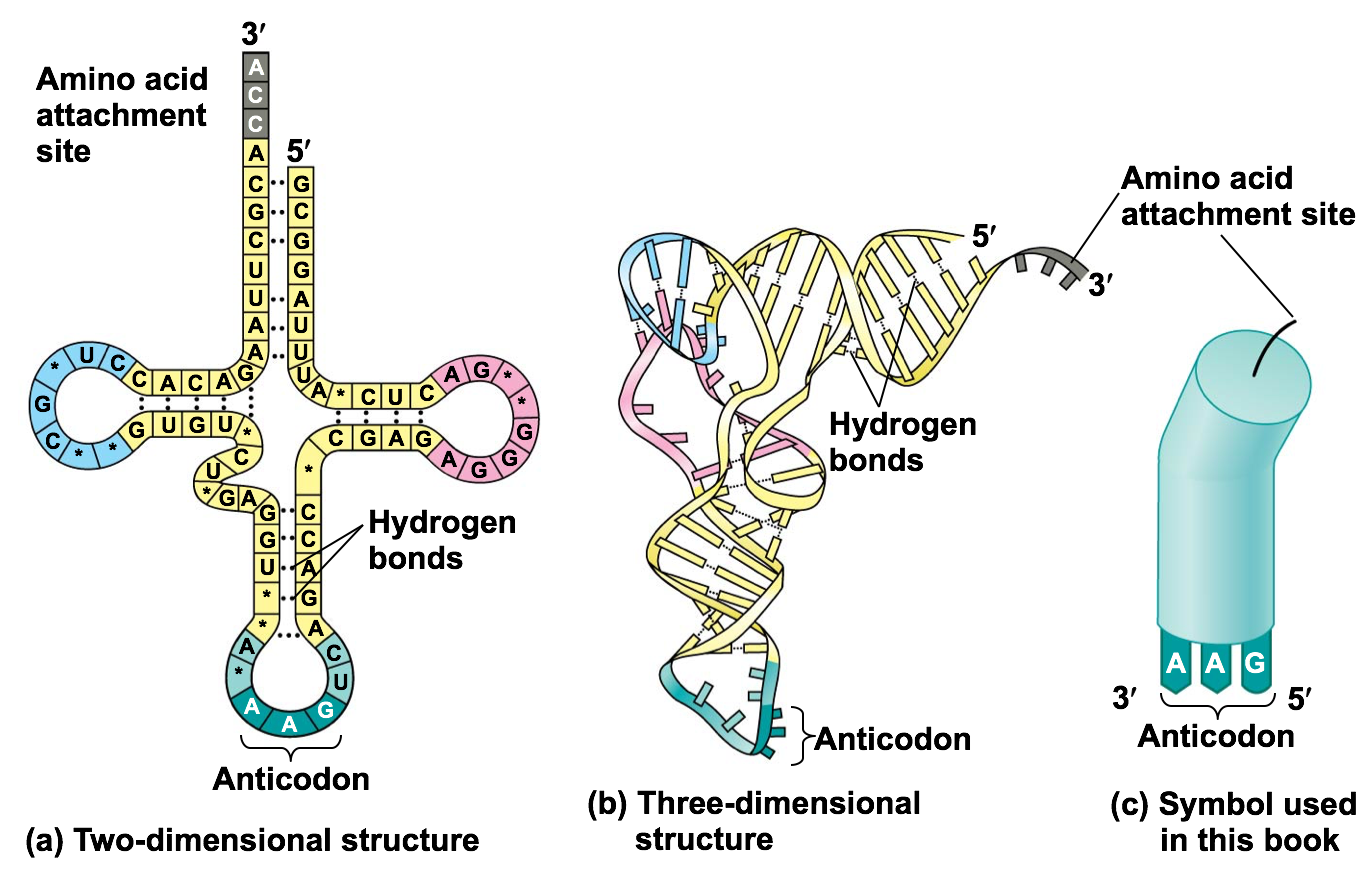
tRNA up close Made of RNA folded into a “clover leaf” shape

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Key features

- \_\_\_\_\_\_\_\_\_\_\_\_ in the middle loop matches to codon to ensure correct amino acid is dropped off

- amino acid attached to its 3’ end



Loading tRNA Aminoacyl tRNA synthetase- Enzyme which bonds specific amino acid to tRNA

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Bonding amino acid to tRNA requires energy

ATP → AMP

3 steps of \_\_\_\_\_\_\_\_\_\_\_\_\_-brings together mRNA by binding to 5’ cap, ribosome subunits, initiator tRNA

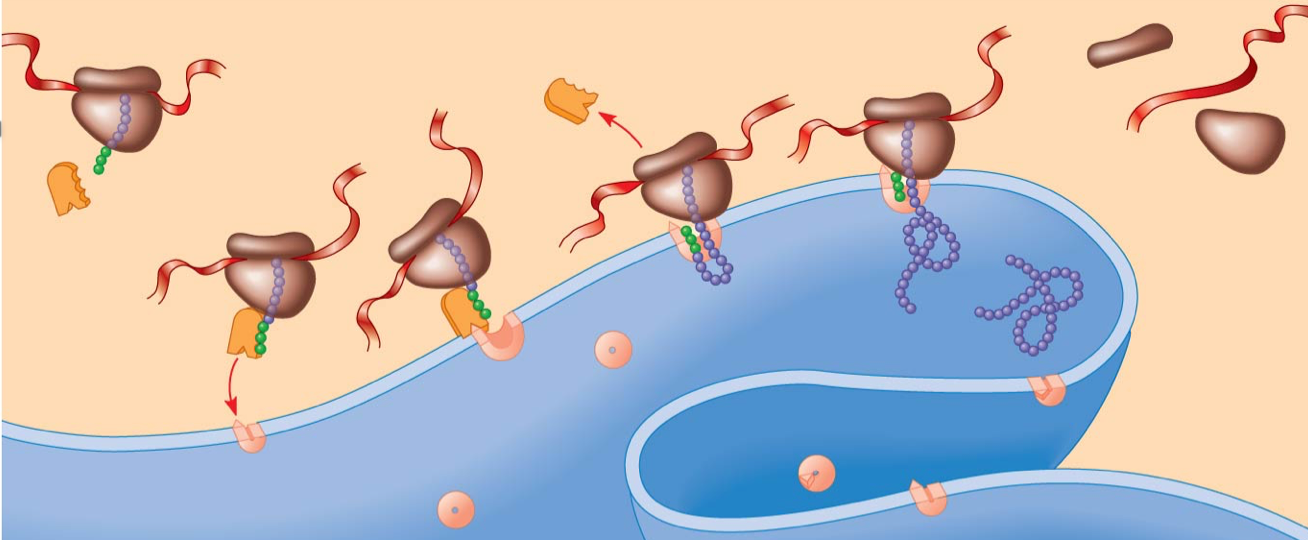
translation \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- adding amino acids based on codon sequence (GTP energy used)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Stop codon plus release factor, H20, GTP

How do proteins \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ~20 amino acids at start of protein that act as address label

know where to go? Possible destinations: -secreted from cell -nucleus -mitochondria -chloroplast

-cell membrane -cytoplasm



Translation in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*DNA is in cytoplasm

\*no mRNA editing/processing

\*ribosomes read mRNA as it is being transcribed

Summary