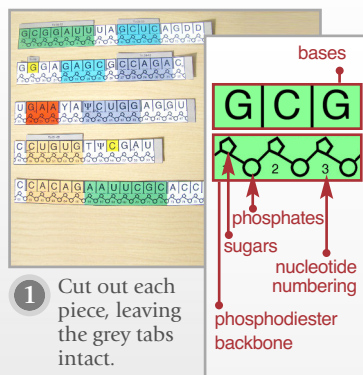


Instructions for Building the Paper Model of tRNA

I. The primary structure



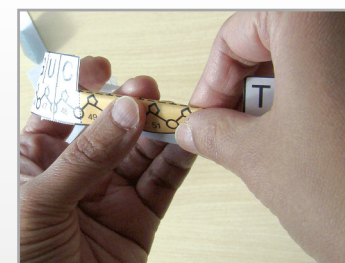
1 Cut out each piece, leaving the grey tabs intact.



2 Following the nucleotide numbering, tape the pieces into a long strip. The blank grey tabs should be hidden.

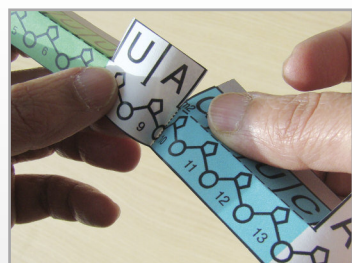
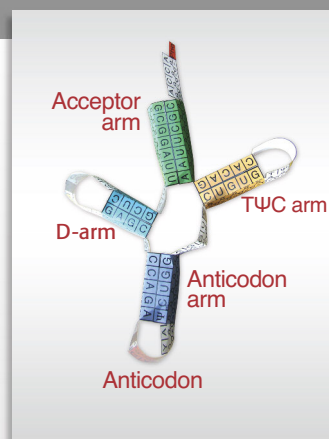


3 Make slits in-between each double line (16 total). Be careful not to cut through the entire strip.



4 Fold back ("mountain fold") on the horizontal dashed lines

II. The secondary structure



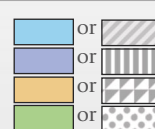
5 Fold in ("valley fold") on the small vertical dotted lines.



6 Bring colored/patterned sections together, and tape so the grey tab is hidden. It is important that you match the bases in the following order:



- 10-13 with 25-22
- 27-31 with 43-39
- 49-53 with 65-61
- 1-7 with 72-66



Notice the almost-perfect base pairing (G:C and A:U bases pair up). At this point the model is a cloverleaf shape—the secondary structure of tRNA. Each colored region represents the double helical regions of the structure.

III. The tertiary structure



7 Bring together bases G19 and C56 (colored yellow) to form a base pair – hide the grey tab by taping it under. This forms the beginnings of the tRNA tertiary structure—the inverted L-shape.

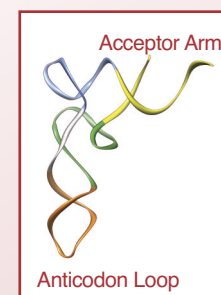
To further explore details of tertiary structure see the atomic model of tRNA at bit.ly/HVzIoH



What is tRNA?

Transfer RNA (tRNA)¹ "translates" the genetic code into the language of proteins. Each tRNA molecule binds to a specific amino acid on the acceptor arm, recognizes its corresponding code on the mRNA through the anticodon loop region and delivers the amino acid to a growing peptide chain in the ribosome² for protein synthesis.

1. See the *Molecule of the Month* feature at doi: [10.2210/rcsb_pdb/mom_2001_3](https://doi.org/10.2210/rcsb_pdb/mom_2001_3)
2. See the *Molecule of the Month* feature at doi: [10.2210/rcsb_pdb/mom_2010_1](https://doi.org/10.2210/rcsb_pdb/mom_2010_1)



tRNA Model Template for Reproduction in Black

