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.
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:
   - 1. 10-13 with 25-22
   - 2. 27-31 with 43-39
   - 3. 49-53 with 65-61
   - 4. 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.

II. The secondary structure

III. The tertiary structure

What is tRNA?

Transfer RNA (tRNA) "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 ribosome for protein synthesis.

Go to pdb101.rcsb.org to:

- READ the Molecule of the Month articles on tRNA and Ribosomes
- DOWNLOAD additional copies of this model, WATCH a video demonstration of how to build it, and to access the DIGITAL ACTIVITY PAGE allowing for further exploration of the 3D model (Learn > Paper Models)
tRNA Model Template for Reproduction in Black

PDB-101 is the educational portal of RCSB Protein Data Bank (rcsb.org)