Method to Generate MOs for Sigma Systems

1) Draw a geometry of the molecule or molecular fragment that you want to analyze.
2) Use only the s and p orbitals on heavy atoms (not hydrogen) from the periodic table.
3) Draw these orbitals with their phasing on the heavy atoms, and then simply draw the phasing of the hydrogen to match the phasing of the s and p orbitals on the heavy atoms.
4) Whenever you place the hydrogens in phase to make constructive (bonding) interactions, also draw at much higher energy the out-of-phase interaction.
5) If the highest bonding orbital has a symmetry element in common with the lowest anti-bonding orbital (usually a C_n axis) and they are formed primarily from different orbitals on the heavy atom, then mix (add and subtract) these two orbitals.
6) You have now drawn cartoons of the molecular orbitals of the sigma system.
7) Populate the orbitals with electrons to get bonds that are delocalized across the entire sigma-system.
8) The population of electrons in the orbital diagram where two geometries are being compared (a Walsh diagram) will lead you to a prediction of the most stable geometry.