1) Vibrational energy transitions are on the same order as the energy from infrared (IR) radiation. We can use IR to induce vibrations in molecules with molecular dipoles, and see what wavelengths were absorbed to make the transition happen.

2) There are six major ways a molecule can vibrate. We call them modes.

3) Each type of bond (i.e. C-O, C=O, OH, etc.) has a characteristic energy required to cause one of the vibrational modes. These are all compiled in correlation tables.