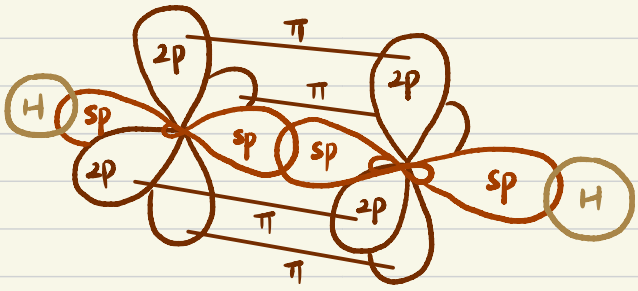
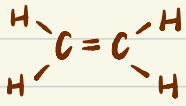
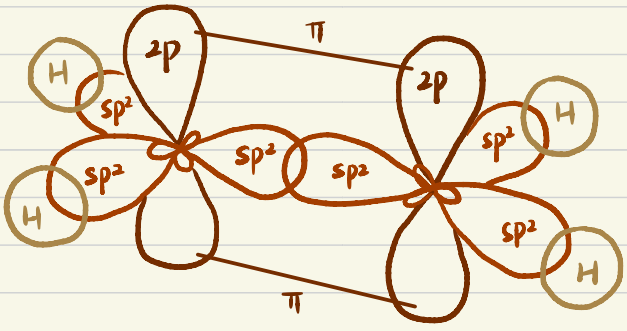
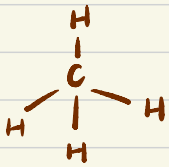
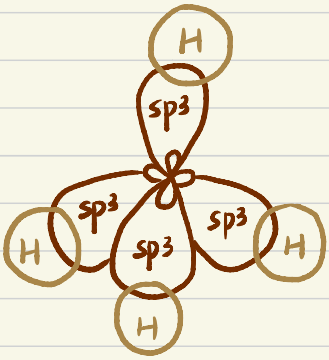
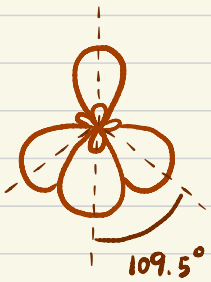
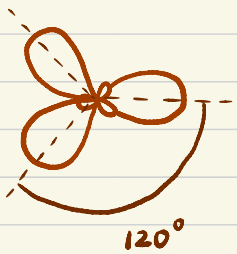
| No. of bp+lp | Hybridization state | Arrangement of orbitals |
|---|---|---|
| 2 | sp | Two sp hybridized orbitals + two unhybridized 2p orbitals: sp hybridized orbitals arranged in linear shape, and the unhybridized 2p orbitals are perpendicular to each other.<br><br>E.g. $H-C\equiv C-H$<br><br>  <br><br><br>C-H single bonds: head on overlap of sp orbital of C atom + 1s orbital of H atom<br><br>C-C single bonds: head on overlap of two sp orbitals of C atom<br><br>Pi bonds: sideway overlap of two unhybridized 2p orbitals of C atom |
| 3 | sp2 | Three sp2 hybridized orbitals + one unhybridized 2p orbital: sp2 hybridized orbitals arranged in trigonal planar shape, and the unhybridized 2p orbital is perpendicular to the trigonal plane.<br><br>E.g.  <br><br><br>  <br><br><br>C-H single bonds: head on overlap of sp2 orbital of C atom + 1s orbital of H atom<br><br>C-C single bonds: head on overlap of two sp2 orbitals of C atom<br><br>Pi bond: sideway overlap of two unhybridized 2p orbitals of C atom |

| No. of bp+lp | Hybridization state | Arrangement of orbitals |
|---|---|---|
| 4 | sp3 | Four sp3 hybridized orbitals (NO unhybridized orbitals): sp3 hybridized orbitals arranged in tetrahedral shape.<br>E.g.   |

| Summary | | | |
|---|---|---|---|
| Type of hybridization | sp3 | sp2 | sp |
| Number of hybridized orbitals formed | Four | Three | Two |
| Number of unhybridized 2p orbitals formed | 0 | 1 | 2 |
| Number of regions of electron density (bp+lp) | 4 | 3 | 2 |
| Electron pair geometry around atom | Tetrahedral | Trigonal planar | Linear |
| Diagram to show the hybridized orbitals |  |  |  |