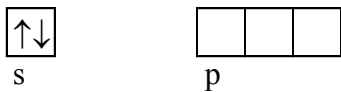
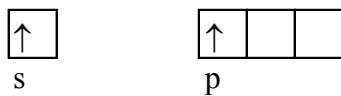


sp hybridization: Consistent with linear (180°)

Initial



Promoted

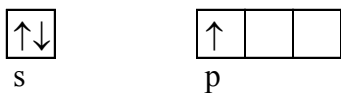


Hybridized

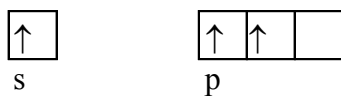


sp² hybridization: Consistent with trigonal planar (120°)

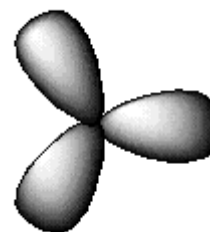
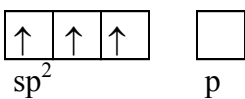
Initial



Promoted

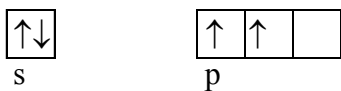


Hybridized

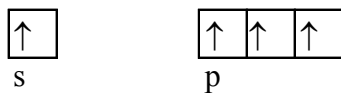


sp³ hybridization: Consistent with tetrahedral (109.5°)

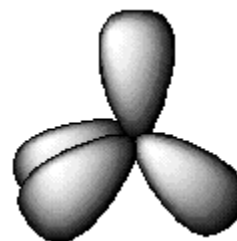
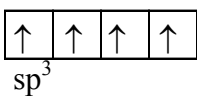
Initial



Promoted

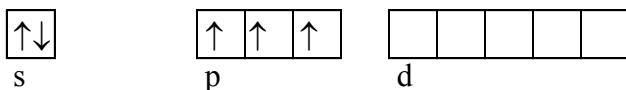


Hybridized

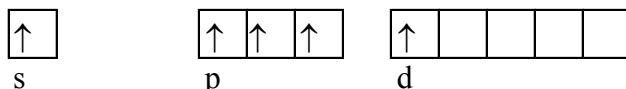


sp^3d hybridization: Consistent with trigonal bipyramidal ($90^\circ, 120^\circ$)

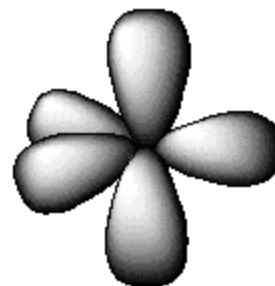
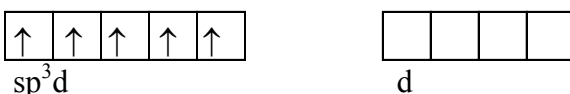
Initial



Promoted

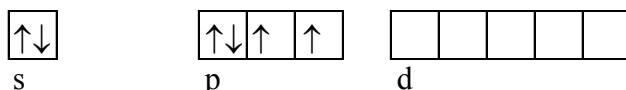


Hybridized

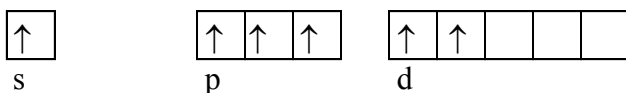


sp^3d^2 hybridization: Consistent with Octahedral ($90^\circ, 180^\circ$)

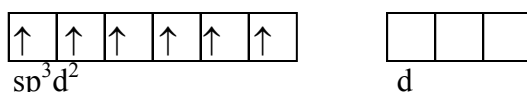
Initial



Promoted



Hybridized



* Only one bond of a multiple bond is hybridized. The other bonds are unhybridized p-orbitals.

* Under most circumstances, non-bonding electron pairs on the central atom are hybridized.

*Sigma bonds, σ , are bonds from hybridized orbitals and pi bonds, π , are unhybridized p-orbitals.

Example: Ethene (Ethylene)

Each carbon is sp^2 hybridized.

On your Own:

Try this for ethyne HCCH

