Forms of Hybridization

Initial atomic orbitals	Changes in orbital configuration	Hybrid orbitals of central atom	Example
s, p	$\bigoplus_{s^2} \bigcirc \bigcirc_p \bigcirc$	180°	BeH ₂
	$\bigcirc \bigcirc $	linear	
	$ \begin{array}{ccc} $	two sp hybrid orbitals linear, 180°	
s, p, p	$\bigoplus_{s^2} \bigoplus_{p^1} \bigcirc$		BCl ₃
	$\bigcirc \bigcirc $	120° planar	
	$ \begin{array}{ccc} & & & \\ & &$	three sp² orbitals trigonal planar, 120°	
s, p, p, p			CH ₄
	$ \bigcirc \qquad \qquad \bigcirc \qquad \bigcirc$	109.5° tetrahedral	
		four sp³ orbitals tetrahedral, 109.5°	

Notes:

- 1. The number of hybrid orbitals can be readily obtained from the designation; e.g., sp^3 means s^1p^3 , which means 1 + 3 = 4 orbitals.
- 2. The empty boxes for the p orbitals mean an unfilled or empty orbital for all of the examples given. For other examples you will see later, these empty p orbitals may be occupied.