
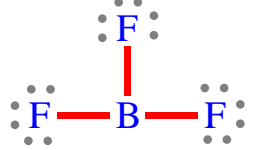
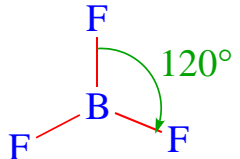
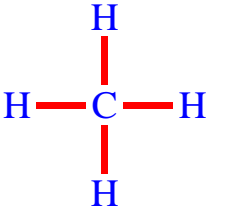
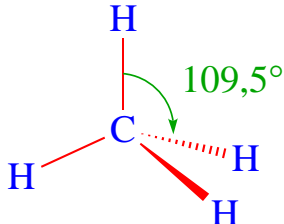
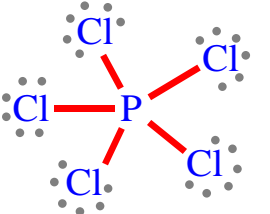
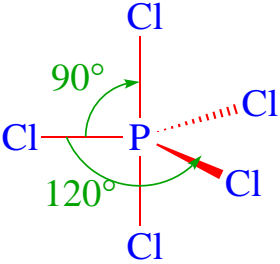
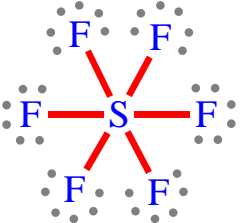
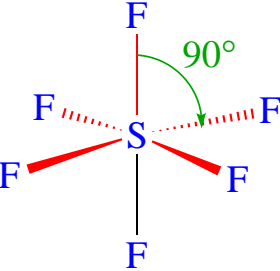
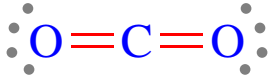
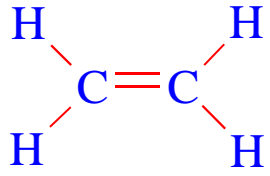
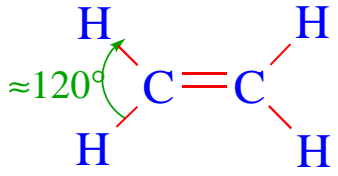
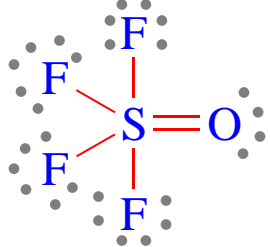
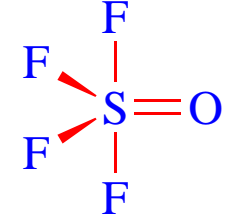
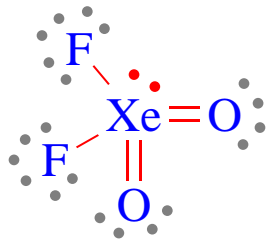
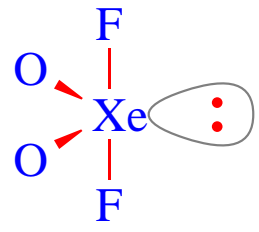
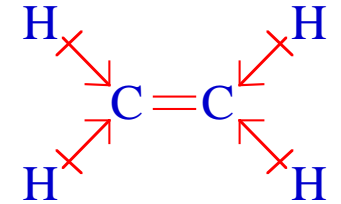
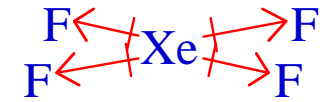
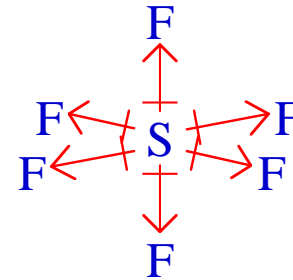
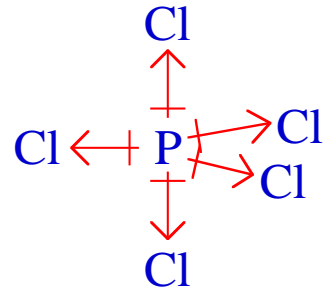
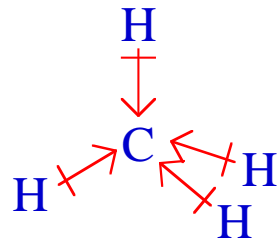
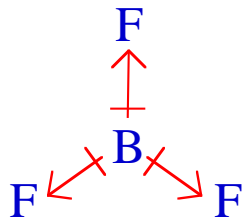


<i>Molécula</i>	<i>Estructura de Lewis</i>	<i>Pares electrónicos</i>	<i>Geometría molecular</i>
<b>BeCl<sub>2</sub></b>		<b>2</b>	Cl—Be—Cl lineal
<b>BF<sub>3</sub></b>		<b>3</b>	 triangular plana
<b>CH<sub>4</sub></b>		<b>4</b>	 tetraédrica
<b>PCl<sub>5</sub></b>		<b>5</b>	 bipirámide trigonal
<b>SF<sub>6</sub></b>		<b>6</b>	 octaédrica

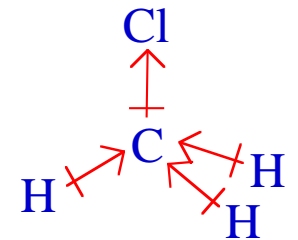
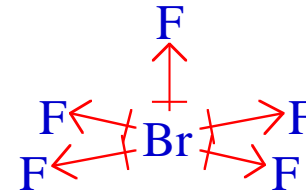
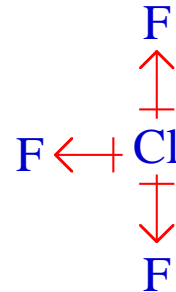
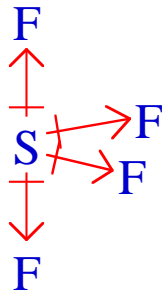
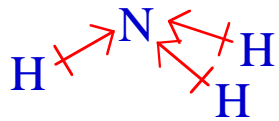
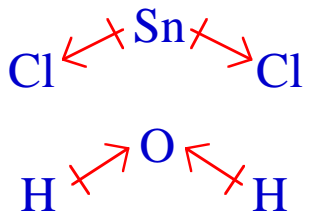
<i>Mol.</i>	<i>Est. de Lewis</i>	<i>PE</i>	<i>PS</i>	<i>P</i>	<i>Geometría electrónica</i>	<i>Geometría Molecular</i>	
<b>SnCl<sub>2</sub></b>		<b>2</b>	<b>1</b>	<b>3</b>	triangular plana		angular
<b>NH<sub>3</sub></b>		<b>3</b>	<b>1</b>	<b>4</b>	tetraédrica		pirámide trigonal
<b>H<sub>2</sub>O</b>		<b>2</b>	<b>2</b>	<b>4</b>	tetraédrica		angular
<b>SF<sub>4</sub></b>		<b>4</b>	<b>1</b>	<b>5</b>	bipirámide trigonal		tetraedro deformado o balancín
<b>ClF<sub>3</sub></b>		<b>3</b>	<b>2</b>	<b>5</b>	bipirámide trigonal		forma de T
<b>I<sub>3</sub><sup>-</sup></b>		<b>2</b>	<b>3</b>	<b>5</b>	bipirámide trigonal		lineal
<b>BrF<sub>5</sub></b>		<b>5</b>	<b>1</b>	<b>6</b>	octaédrica		pirámide cuadrada
<b>XeF<sub>4</sub></b>		<b>4</b>	<b>2</b>	<b>6</b>	octaédrica		plano-cuadrada

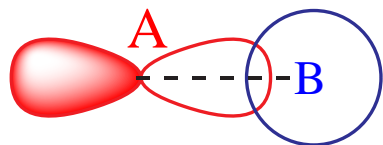
<i>Molécula</i>	<i>Estructura de Lewis</i>	<i>Enlaces</i>	<i>PS</i>	<i>Geometría molecular</i>
<b>CO<sub>2</sub></b>		<b>2</b>	<b>0</b>	O=C=O lineal
<b>C<sub>2</sub>H<sub>4</sub></b>		<b>3</b>	<b>0</b>	 triangular plana
<b>SOF<sub>4</sub></b>		<b>5</b>	<b>0</b>	 bipirámide trigonal
<b>XeO<sub>2</sub>F<sub>2</sub></b>		<b>4</b>	<b>1</b>	 balancín

*Algunas moléculas apolares*

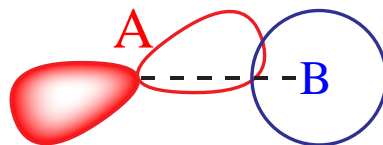


*Algunas moléculas polares*

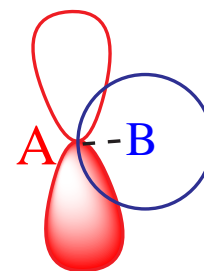




**Máximo Solapamiento**



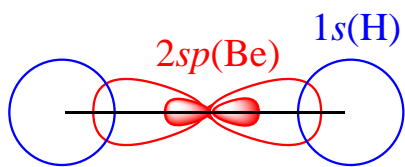
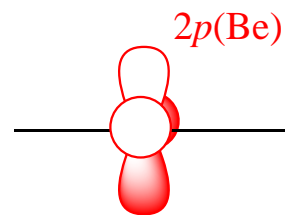
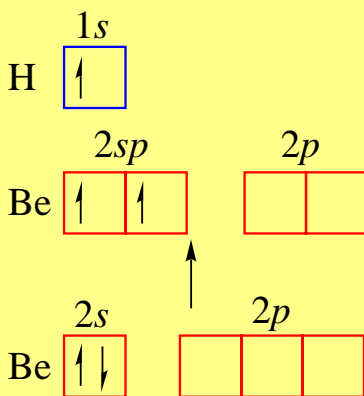
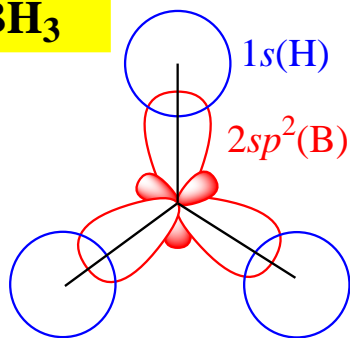
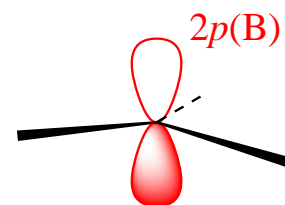
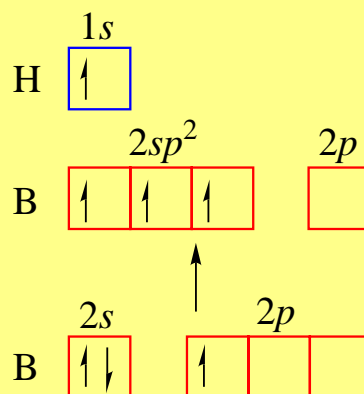
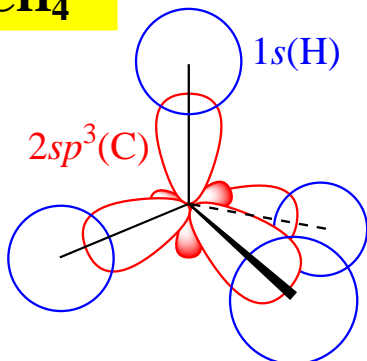
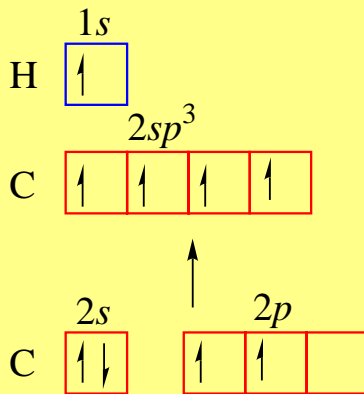
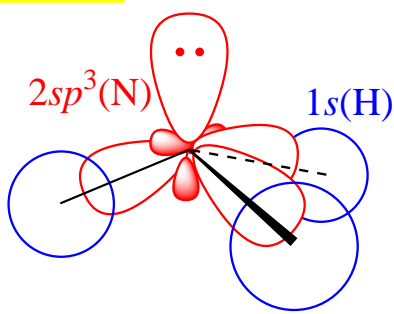
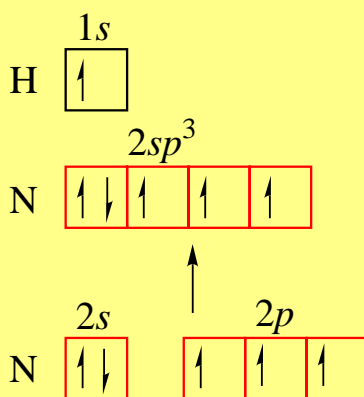
**Solapamiento intermedio**

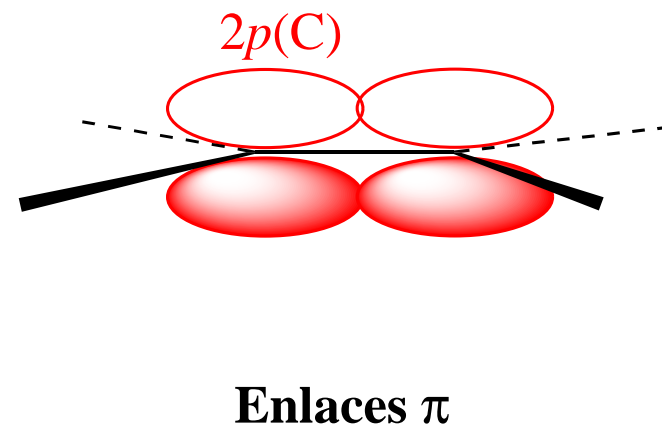
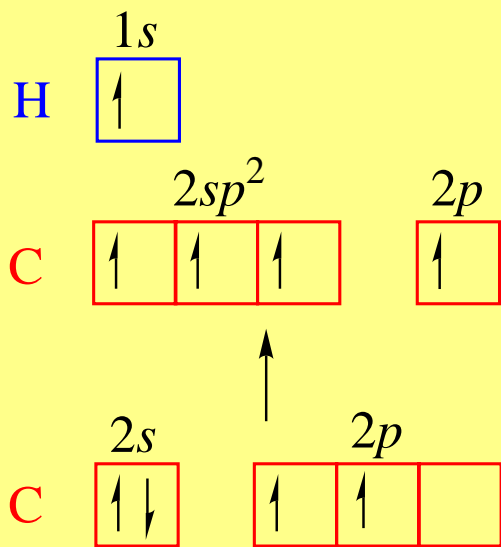
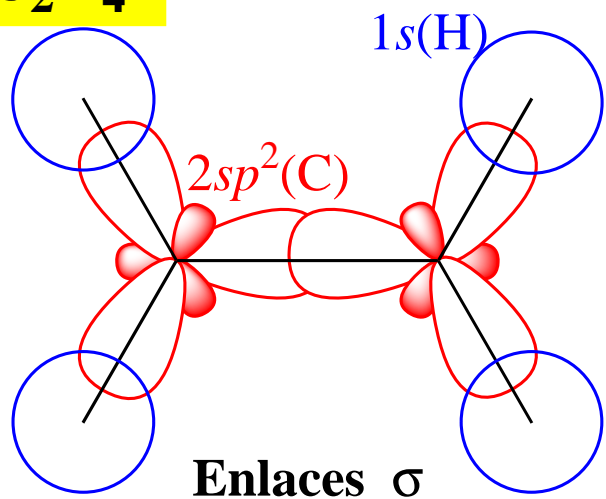


**Solapamiento nulo**

**Tabla 3.1. Hibridación de orbitales atómicos y geometría electrónica**

<b>Geometría electrónica</b>	<b>Orbitales necesarios</b>	<b>Orbitales híbridos</b>	<b>Ejemplos</b>
<b>Lineal</b>	$s + p$	$sp$	BeCl <sub>2</sub> , CO <sub>2</sub>
<b>Triangular plana</b>	$s + p + p$	$sp^2$	BF <sub>3</sub> , SnCl <sub>2</sub> , C <sub>2</sub> H <sub>4</sub>
<b>Tetraedro</b>	$s + p + p + p$	$sp^3$ (o $sd^3$ )	CH <sub>4</sub> , NH <sub>3</sub> , H <sub>2</sub> O
<b>Bipirámide trigonal</b>	$s + p + p + p + d$	$sp^3d$ (o $spd^3$ )	PCl <sub>5</sub> , SF <sub>4</sub> , ClF <sub>3</sub> , I <sub>3</sub> <sup>-</sup>
<b>Octaedro</b>	$s + p + p + p + d + d$	$sp^3d^2$	SF <sub>6</sub> , BrF <sub>5</sub> , XeF <sub>4</sub>

**BeH<sub>2</sub>**Enlaces  $\sigma$ Orbitales  $2p$  vacíos**BH<sub>3</sub>**Enlaces  $\sigma$ Orbital  $2p$  vacío**CH<sub>4</sub>**Enlaces  $\sigma$ **NH<sub>3</sub>**Enlaces  $\sigma$ 





**Figura 3.1.** Dos modelos para el enlace X-H en el agua y en el sulfuro de hidrógeno.

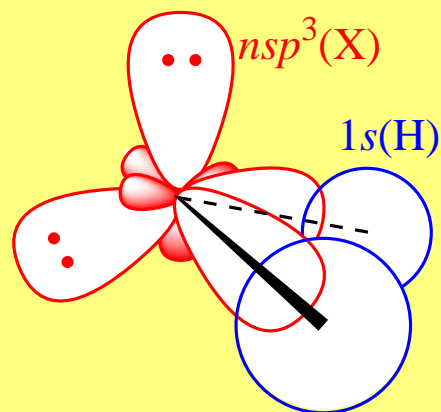
**X = O ( $n = 2$ ), S ( $n = 3$ )**

*Angulo H-X-H acorde con hibridación*

*Carácter en orbitales de X del enlace X-H*

*Carácter en orbitales de X de los pares solitarios*

**Modelo CON hibridación**



**109,5°**

**25% s**

**75% p**

**más carácter p**



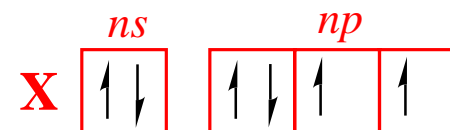
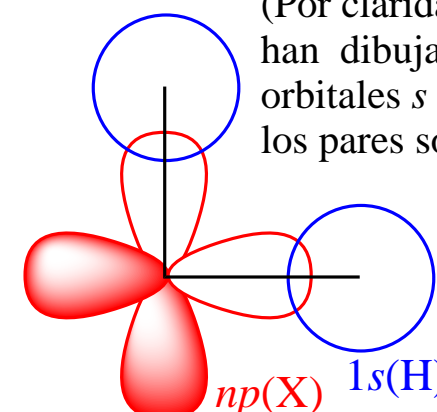
**25% s**

**75% p**

**más carácter s**



**Modelo SIN hibridación**



**90°**

**0% s**

**100% p**

**50% s**

**50% p**

(Por claridad, no se han dibujado los orbitales s y p de los pares solitarios)

