

| Name                      | Formula                  | Lewis Structure   | Hybridization           | Shape                |
|---------------------------|--------------------------|---|-------------------------|----------------------|
| dichloro, difluoromethane | $\text{CCl}_2\text{F}_2$ | <p style="text-align: right;">4 <math>\sigma</math><br/>0 <math>\pi</math></p>  | $\text{sp}^3$           | tetrahedral          |
| nitrate ion               | $\text{NO}_3^-$          | <p style="text-align: center;">resonance</p> <p style="text-align: right;">3 <math>\sigma</math><br/>1 <math>\pi</math></p> | $\text{sp}^2$           | trigonal planar      |
| carbonate ion             | $\text{CO}_3^{2-}$       | <p style="text-align: center;">resonance</p> <p style="text-align: right;">3 <math>\sigma</math><br/>1 <math>\pi</math></p> | $\text{sp}^2$           | trigonal planar      |
| carbon tetrachloride      | $\text{CCl}_4$           | <p style="text-align: right;">4 <math>\sigma</math><br/>0 <math>\pi</math></p>  | $\text{sp}^3$           | tetrahedral          |
| xenon tetrafluoride       | $\text{XeF}_4$           | <p style="text-align: right;">4 <math>\sigma</math><br/>0 <math>\pi</math></p>  | $\text{d}^2\text{sp}^3$ | square planar        |
| arsenic trifluoride       | $\text{AsF}_3$           | <p style="text-align: right;">3 <math>\sigma</math><br/>0 <math>\pi</math></p>  | $\text{sp}^3$           | pyramidal            |
| formaldehyde              | $\text{CH}_2\text{O}$    | <p style="text-align: right;">3 <math>\sigma</math><br/>1 <math>\pi</math></p>  | $\text{sp}^2$           | trigonal planar      |
| chlorine trifluoride      | $\text{ClF}_3$           | <p style="text-align: right;">3 <math>\sigma</math><br/>0 <math>\pi</math></p>  | $\text{dsp}^3$          | T-shaped             |
| phosphorus pentafluoride  | $\text{PF}_5$            | <p style="text-align: right;">5 <math>\sigma</math><br/>0 <math>\pi</math></p>  | $\text{dsp}^3$          | trigonal bipyramidal |
| beryllium dichloride      | $\text{BeCl}_2$          | <p style="text-align: right;">2 <math>\sigma</math><br/>0 <math>\pi</math></p>  | $\text{sp}$             | linear               |

Homework:

| Name                  | Formula     | Lewis Structure                       | Hybridization | Shape            |
|-----------------------|-------------|---------------------------------------|---------------|------------------|
| sulfur tetrafluoride  | $SF_4$      | <br>$4\sigma$<br>$0\pi$               | $dsp^3$       | seesaw           |
| bromine pentafluoride | $BrF_5$     | <br>$5\sigma$<br>$0\pi$               | $d^2sp^3$     | square pyramidal |
| ammonia               | $NH_3$      | <br>$3\sigma$<br>$0\pi$               | $sp^3$        | pyramidal        |
| xenon difluoride      | $XeF_2$     | <br>$2\sigma$<br>$0\pi$               | $dsp^3$       | linear           |
| methane               | $CH_4$      | <br>$4\sigma$<br>$0\pi$               | $sp^3$        | tetrahedral      |
| carbon monoxide       | $CO$        | <br>$1\sigma$<br>$2\pi$               | $sp$          | linear           |
| sulfate ion           | $SO_4^{2-}$ | <br>$4\sigma$ $0\pi$ $4\sigma$ $2\pi$ | $sp^3$        | tetrahedral      |
| sulfur hexafluoride   | $SF_6$      | <br>$6\sigma$<br>$0\pi$               | $d^2sp^3$     | octahedral       |
| sulfur dioxide        | $SO_2$      | <br>$2\sigma$ $1\pi$ $2\sigma$ $2\pi$ | $sp^2$        | bent             |
| carbon dioxide        | $CO_2$      | <br>$2\sigma$<br>$2\pi$               | $sp$          | linear           |