ANSWERS: **Shapes of molecules**

**You don’t have to draw 3D shapes in Level 2 Chemistry.**

**When sketching shapes of molecules non-bonding/lone pairs/valence electrons don’t have to be shown.**

|  |  |  |
| --- | --- | --- |
| **BCl3****trigonal planar****120 °** | **COBr2****trigonal planar** **120 °** |  |
| **F2CO****trigonal planar****120 °** |  **AsF3** **trigonal pyramid****109 °** | **C2H5OH****C atoms have a tetrahedral parent geometry, overall shape tetrahedral****O atom has a tetrahedral parent geometry, overall shape bent** |
| **CCl3F**tetrahedral**180 °** | **N2O****linear** **180 °** | **NOCl****linear** **180 °** |
| HOClbent/v-shapedless than 109.5° | **NH3****A picture containing object, clock  Description automatically generated**trigonal pyramidless than 109.5 ° | **N2H4****trigonal pyramid****less than 109 °** around N atom |
| CH4tetrahedral**109.5**° | **AsH3**trigonal pyramidless than 109.5 ° | **NF3****trigonal pyramidal****less than 109.5** ° |
| **BF3****trigonal planar****120**° | **PF3**trigonal pyramidalless than 109.5° | **CCl4****tetrahedral****109.5**° |
| **PH3**trigonal pyramidalless than 109.5° | **CO2**linear180 **°** | **H2CO (or CH2O)**Image result for H2CO shapetrigonal planar120 **°** |
| **H2O****less than 109.5** **°****bent or v-shaped** | **CH2Br2 or CH2Cl2****tetrahedral**109.5° | **CS2**linear180**°** |
| **O2****linear**180 **°** | **CH3Br or CH3Cl****tetrahedral**109.5° | **SO2**bent/v-shapedless than 109.5° | bent/v-shapedless than 109.5° |
| **XO2****(where X has 4 valence electrons)****linear**180 **°** | **YO2****(Y has 6 valence electrons)**bent/v-shapedless than 120 **°** | **NCl3****trigonal pyramidal****less than 109.5** **°** |
| **PBr3 or PCl3****trigonal pyramidal** **less than 109.5** **°** | **H2S****less than 109.5** **°**v-shaped or bent | **COCl2**trigonal planar120**°** |
| **OCl2 aka Cl2O**v-shaped/bentless than 109.5 **°** | **SiCl4****tetrahedral** | **HCN****linear** **180°** |
| **SF2****bent/v-shaped****less than 109.5** **°** | **F2O or OF2****bent/v-shaped****less than 109.5** **°** | **N2**linear180**°** |

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