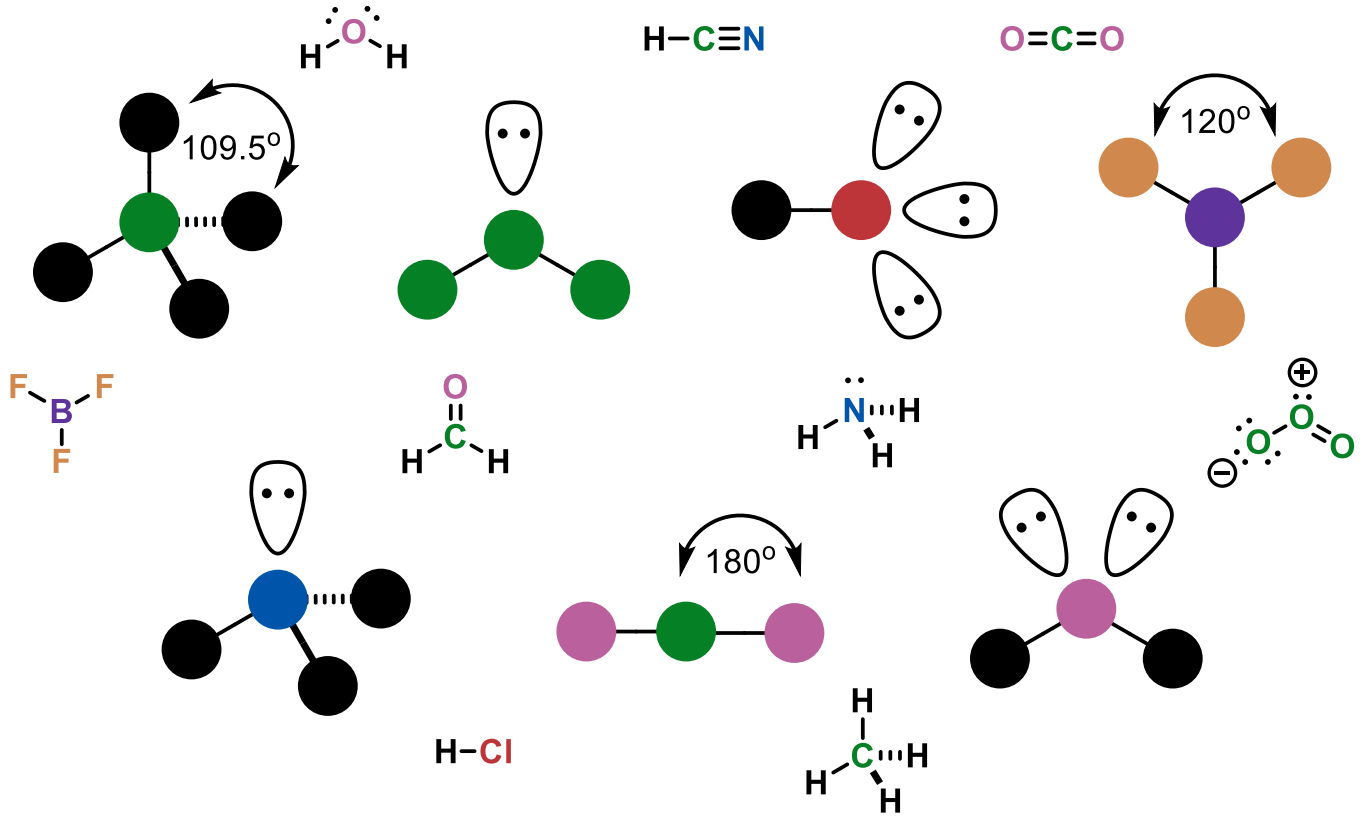
CHEMISTRY AND BUILDING MOLECULES



What is Chemistry??

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Chemistry is a ***branch of science*** that studies the properties of matter and how matter interacts with energy!

It is considered a ***central science*** because it is an important part of other major sciences including biology, Earth science, and physics.

What Chemists Do:

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What Chemists Do:

- Analyze substances
- Create new substances
- Predict how different substance will interact with one another
- Measure the physical properties of substances

VSEPR

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- Valence shell electron pair repulsion theory:
    - how chemist can ***predict the geometry of molecules*** from the number of bonds and electron pairs surrounding the central atoms.

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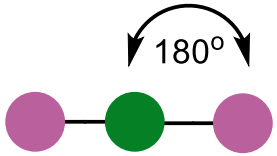
    - 180 degrees
- Let’s build some molecules!!!

VSEPR #2

Steric #2
Linear Molecules



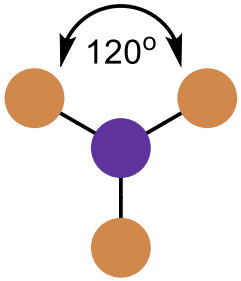
examples

O=C=O	H−C≡N
CO_2	HCN
carbon dioxide	cyanide
double bonds	triple bond and single bond

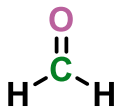
VSEPR #3

Steric #3

Trigonal Planar Molecules



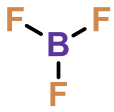
examples



CH_2O

formaldehyde

double bond
and
single bonds

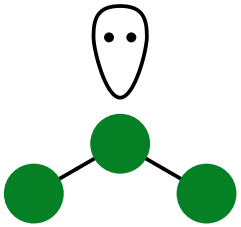


BF_3

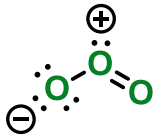
boron trifluoride

single bonds

Bent Molecules



examples



O_3

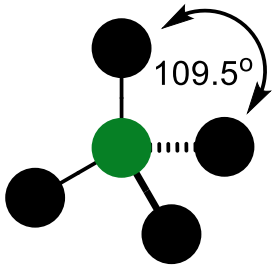
ozone

double bond
and
single bond
and
lone pair e-

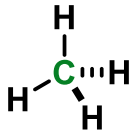
VSEPR #4

Steric #4

Tetrahedral Molecules



examples

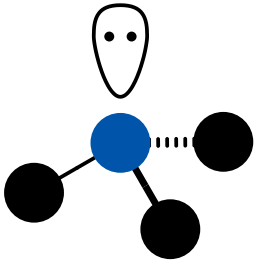


CH_4

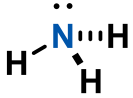
methane

single bonds

Trigonal Pyramidal Molecules



examples

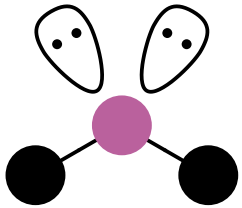


NH_3

amonia

single bonds
and
lone pair e-

Bent Molecules



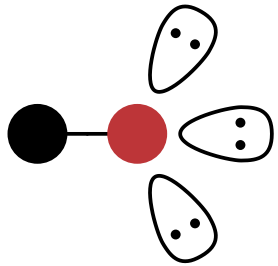
examples

H_2O

water

single bond
and
lone pair e-s

Linear Molecules



examples

HCl

hydrochloric acid

single bond
and
lone pair e-s

Build Your Own Molecules

What kind of molecules can you build on your own?