Unit 5 NAME

Class Work 1/8/14

5.10 Molecular Geometry

SPARK (take out textbook homework page 185 and 187)

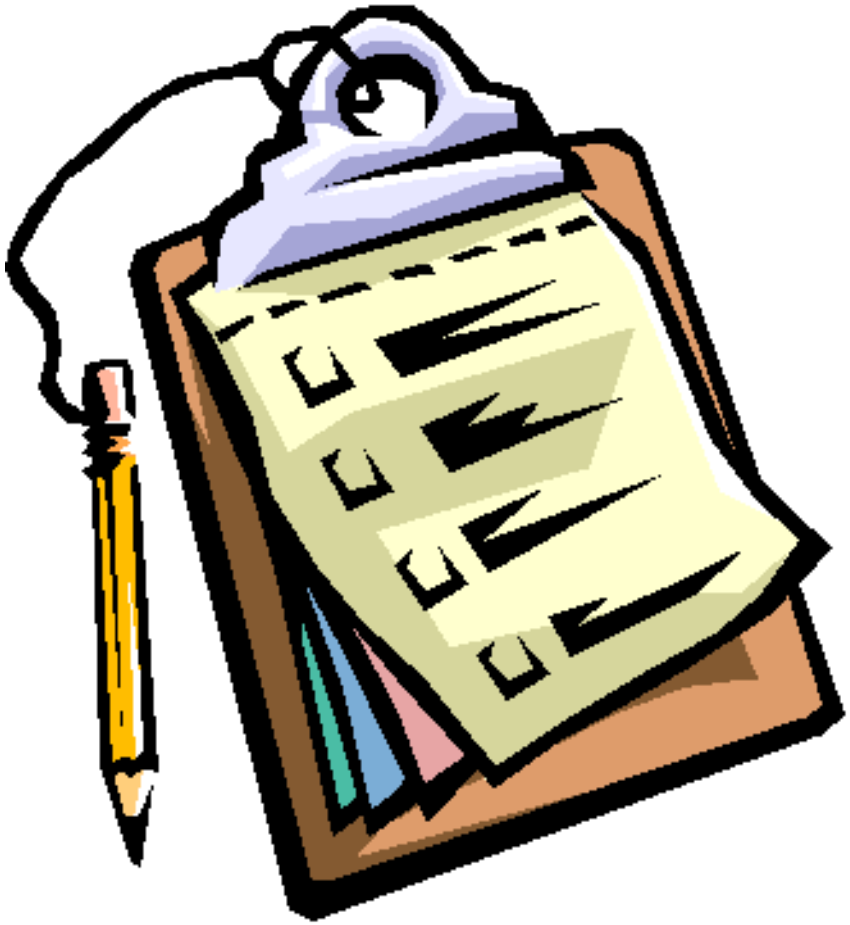
Complete your participation rubric. Study for your naming quiz!

Objective

SWBAT identify the shape of a molecular compound

Agenda:

- SPARK/Objective
- Naming Quiz
- Notes
- Marshmolecules
- Homework



Objective: SWBAT identify the shape of a molecular compounds

Naming Quiz

- Pass back “grateful” notes

Molecular Geometry

- How atoms in a molecule are arranged in 3D space

5 SHAPES!

- **Linear**
- **Bent**
- **Trigonal Planar**
- **Tetrahedral**
- **Trigonal Pyramidal**

Objective: SWBAT identify the shape of a molecular compounds

VSPER Theory

- Valence shell electron pair repulsion
- Pairs of electrons are arranged to be as far apart as possible

Objective: SWBAT identify the shape of a molecular compounds

Why VSEPR?

Lewis Dot Diagrams

- Predicts number and types of bonds between the atoms
- Indicates lone pairs of electrons
- 2D instead of 3D

VSEPR

- Predicts the shapes of molecules (3D)
- Provides little information about presence of double or triple

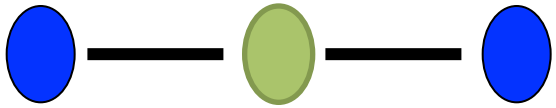
Objective: SWBAT identify the shape of a molecular compounds

How is shape determined?

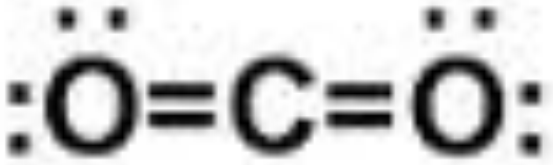
1. How many atoms are bound to the central atom?
2. How many lone pairs are on the central atom?

Objective: SWBAT identify the shape of a molecular compounds

Shape 1: Linear



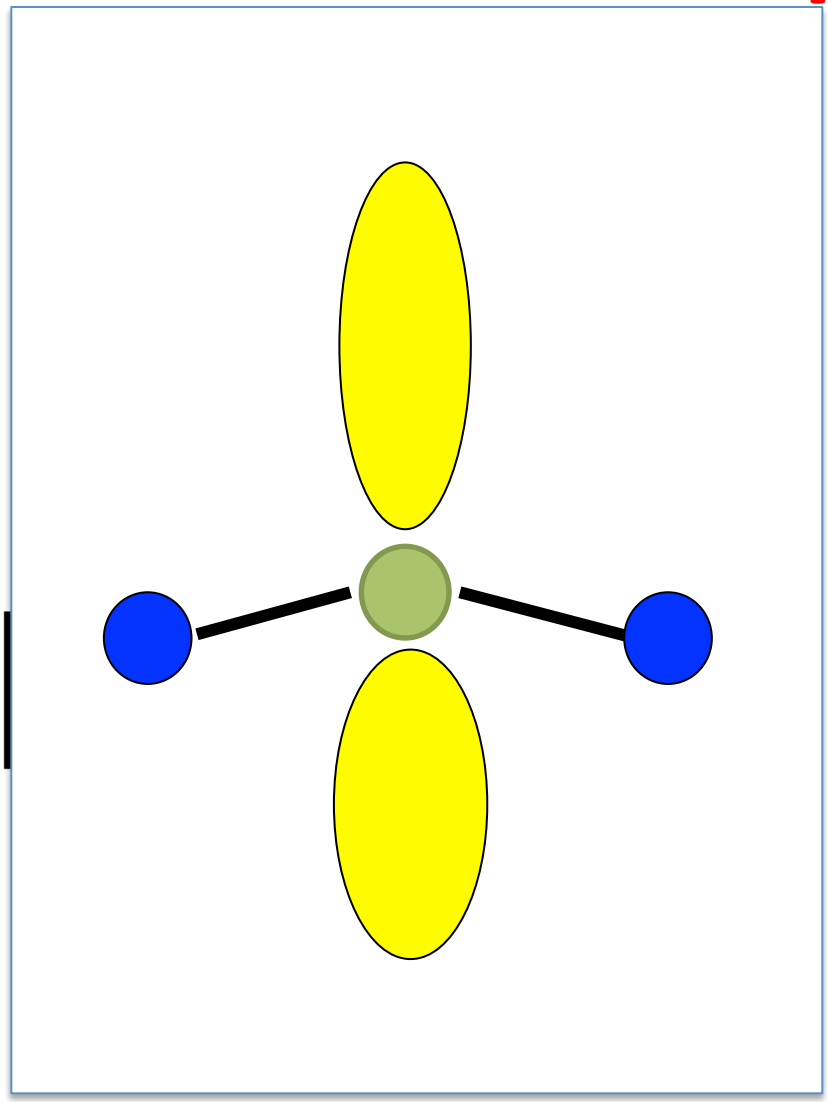
CO_2

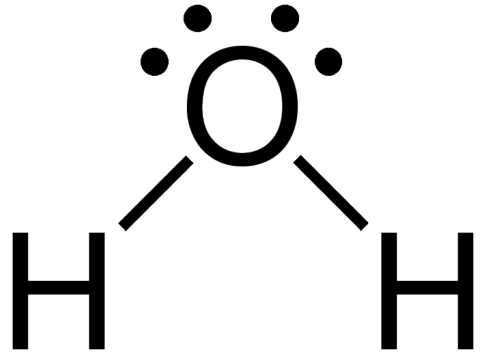


- Atoms Bonded to Central Atom: 2
- Lone Pairs on Central Atom: 0

Objective: SWBAT identify the shape of a molecular compounds

Shape 2: Bent



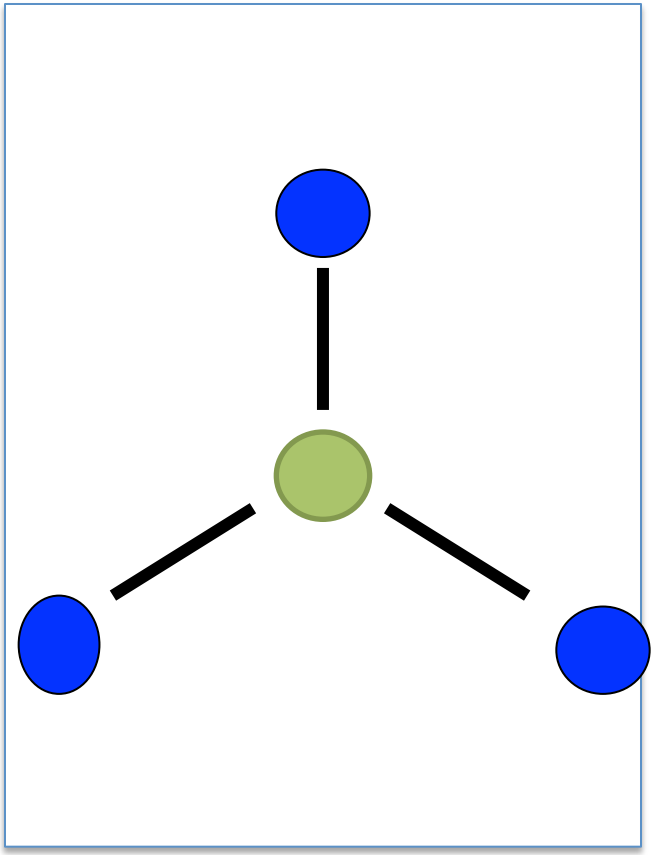


H_2O

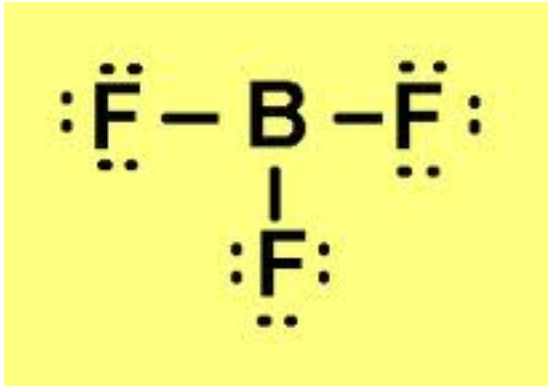
- Atoms Bonded to Central Atom: 2
- Lone Pairs on Central Atom: 2

Objective: SWBAT identify the shape of a molecular compounds

Shape 3: Trigonal Planar



BF_3



- Atoms Bonded to Central Atom: 3
- Lone Pairs on Central Atom: 0

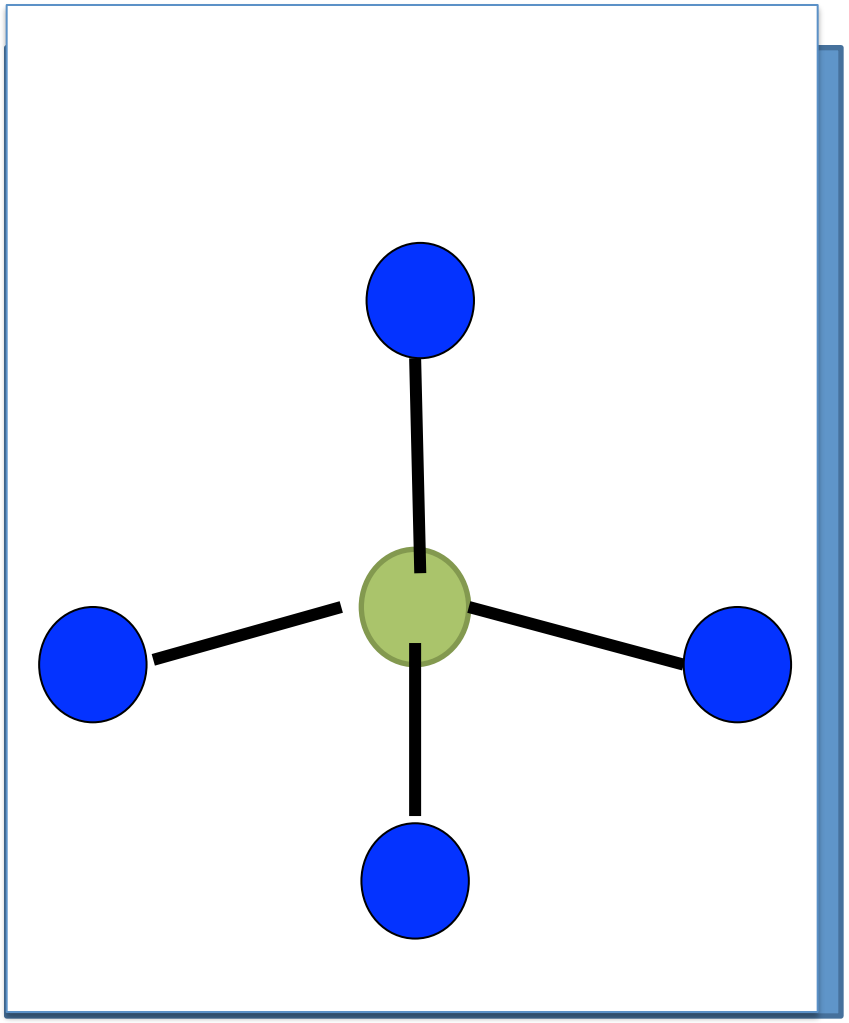
Objective: SWBAT identify the shape of a molecular compounds

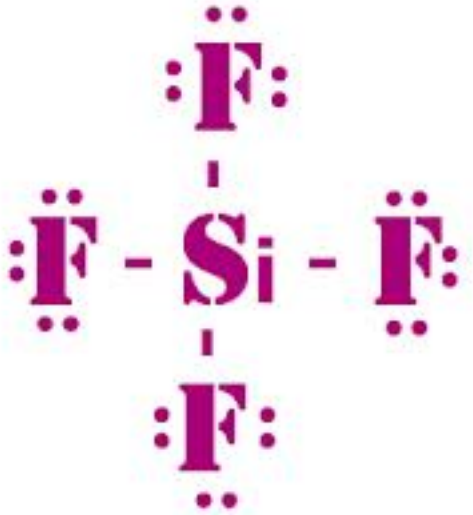
Alert! Weird element

- Boron is an exception! It is happy with just six electrons… I know it's weird!

Objective: SWBAT identify the shape of a molecular compounds

Shape 4: Tetrahedral



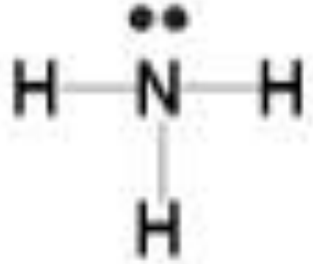


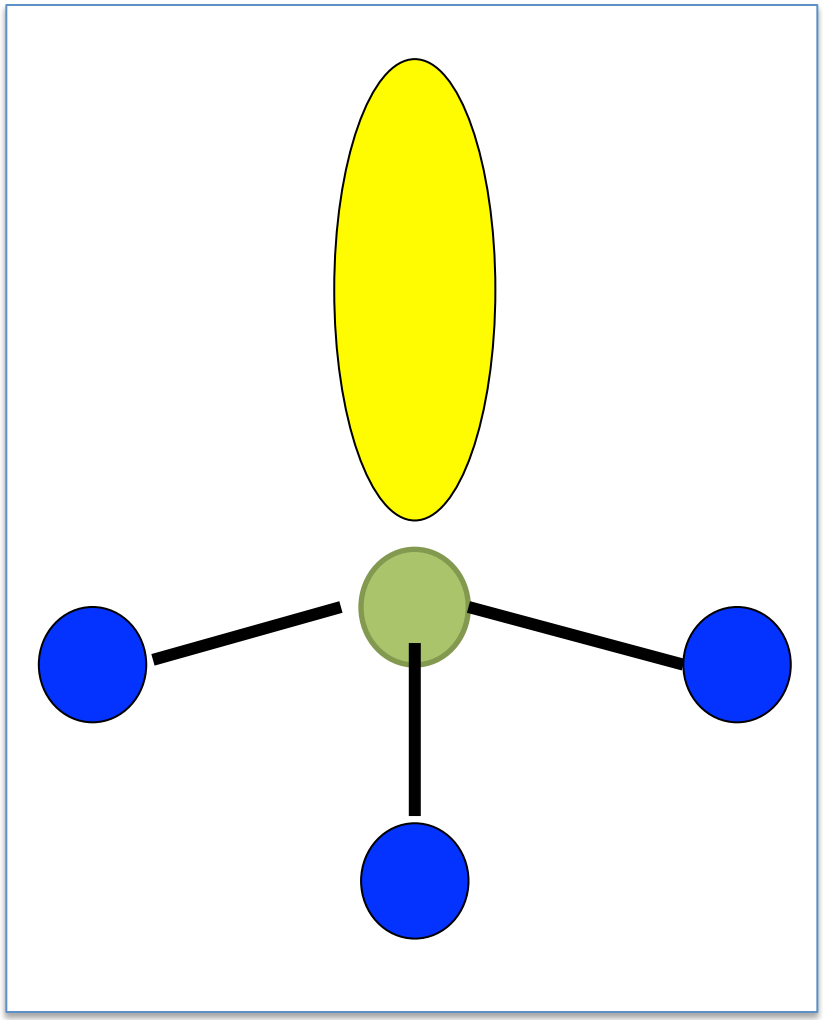
SiF_4

- Atoms Bonded to Central Atom: 4
- Lone Pairs on Central Atom: 0

Objective: SWBAT identify the shape of a molecular compounds

Shape 5: Trigonal Pyramidal





NH_3

- Atoms Bonded to Central Atom: 3
- Lone Pairs on Central Atom: 1

Objective: SWBAT identify the shape of a molecular compounds

Practice Time- MARSHMOLECULES!

1. Create marshmolecules for each shape.
2. Predict the VSEPR shape for the molecules provided in the table.

Objective: SWBAT identify the shape of a molecular compounds

HOMEWORK

Check progress report and complete missing work!

Add words to glossary and make a cheat sheet for the unit!

Objective: SWBAT identify the shape of a molecular compounds