

11.3/10 OCT 1 & 2010

Playing with CHNOPS

Due: Fri. Oct. 15

1. Use styrofoam balls and toothpicks to create 3-D structures of CHNOPS with the correct valence numbers.

- ❖ Valence electrons want to be as far away from each other as possible.
- ❖ EXCEPTION: Atoms with 2 valence electrons (they have hidden electrons repelling each other.



element	H	O	N	C	P	S	S
valence	1	2	3	4	5	6	2
sketch							

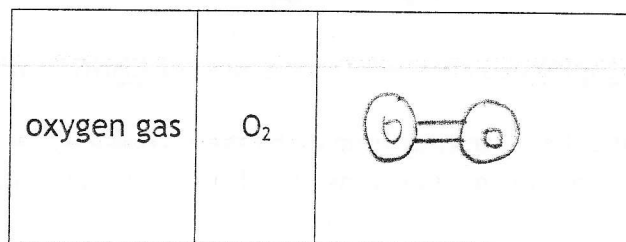
2. Create and sketch the simple molecules below.

- ❖ Use one ONE toothpick to represent a bond. (This represents one shared valence electron.)
- ❖ Remember to represent the difference in sizes between the elements.

water	H ₂ O	
hydrogen gas	H ₂	
methane	CH ₄	
ammonia	NH ₃	

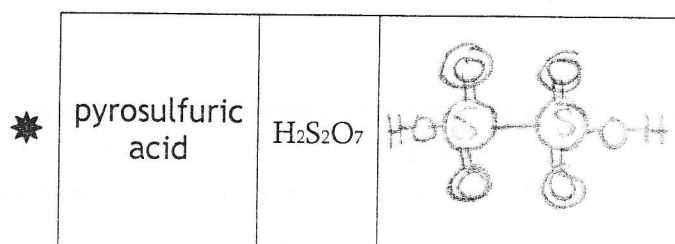
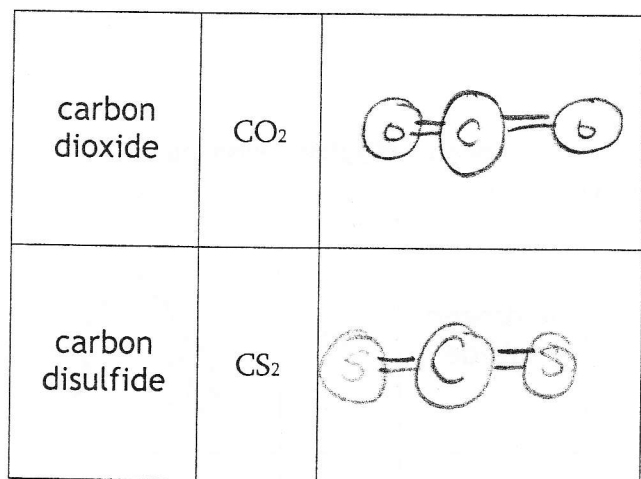
hydrogen sulfide	H ₂ S	
hydrogen peroxide	H ₂ O ₂	
ozone	O ₃	

3. How would you make O₂, oxygen gas?

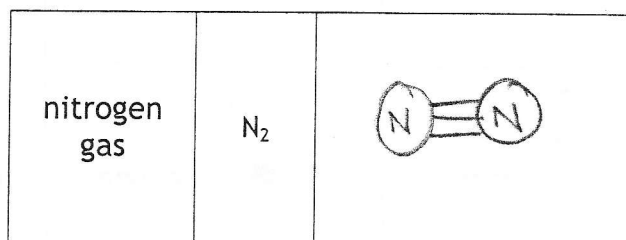


❖ If one toothpick represents a single bond (one shared valence electron); two toothpicks represent a double bond (2 shared valence electrons).

4. Create and sketch the molecules below.



5. How would you make N₂, nitrogen gas?



❖ Three toothpicks represent a triple bond, or 3 shared valence electrons.

