Warm Up

Name the following compounds:

1) P_2F_4　molecular

diphosphorous
　　tetrafluoride

3) N_2O　molecular

dinitrogen
　　monoxide

2) Na_2S　　ionic

$Na^+ \; S^{2-}$

Sodium sulfide

4) NH_4NO_3　ionic

$NH_4^+ \; NO_3^-$
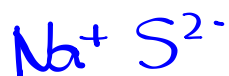
ammonium nitrate

Worksheet
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Bonding Capacity

H

C

O

S

N

Cl

1 H Hydrogen																	4 3 2 1	2 He Helium
3 Li Lithium	4 Be Beryllium											5 B Boron	6 C Carbon	7 N Nitrogen	8 O Oxygen	9 F Fluorine		10 Ne Neon
11 Na Sodium	12 Mg Magnesium											13 Al Aluminium	14 Si Silicon	15 P Phosphorus	16 S Sulfur	17 Cl Chlorine		18 Ar Argon
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine		36 Kr Krypton
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine		54 Xe Xenon
55 Cs Cesium	56 Ba Barium	57 La Lanthanum	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine		86 Rn Radon
87 Fr Francium	88 Ra Radium	89 Ac Actinium	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium										

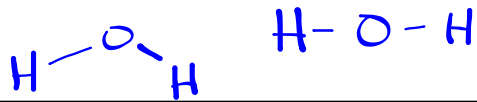| 58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium
90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium

Molecular Models

What are the three-dimensional structures of the molecular substances: water (H_2O), hydrogen peroxide (H_2O_2), hydrogen sulfide (H_2S), methane (CH_4), methanol (CH_3OH), ethanol (C_2H_5OH), propane (C_3H_8), ammonia (NH_3), chlorine and sulfur (cyclooctasulfur)?

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Name	Molecular Formula	Structural Diagram
water	H_2O	H—O—H H–O–H

Naming and Writing Formulas
for Acids and Bases

Reminder:

Acids are aqueous hydrogen compounds that turn blue litmus red.

Bases are aqueous solutions of ionic hydroxides that turn red litmus blue.

IDENTIFYING ACIDS AND BASES FROM FORMULA'S

Most acid can be identified from **starting with H** or ending in COOH.

i.e. HCl, H_2SO_4, CH_3COOH

Note: NH_3 and CH_4 are not acids!

Most bases can be identified from ending in -OH

Bases are named using the rules for naming ionic compounds.

Ex. NaOH   sodium hydroxide

When naming acids, common names (for common acids)
or IUPAC names can be used.

Classical Acid Names
- used the suffix **-ic** Ex. sulfuric
- used hydro and the suffix **-ic** Ex. hydrochloric
- used suffix **-ous** Ex. sulfurous
- and others (see inside back cover)

 IUPAC (modern) Acid Names
- name the acid as an aqueous hydrogen compound
Ex. aqueous hydrogen sulfide - $H_2S_{(aq)}$

Rules for Naming Acids

1. If anion ends in -ide, the acid is "hydro_____ic acid"

Ex. HCl

aqueous hydrogen chloride

$H^+ Cl^-$

hydrochloric acid

2. If anion ends in -ate, the acid is "_____ic acid"

Ex. H_2SO_4

Sulfuric acid

$H^+ SO_4^{2-}$

aqueous hydrogen sulfate

3. If anion ends in -ite, the acid is "_____ous acid"

Ex. H_2SO_3

Sulfurous acid

$H^+ SO_3^{2-}$

aqueous hydrogen sulfite

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EXERCISE # 26-33