7) disilicon hexabromide Si_2Br_6
8) diselenium diiodide → Se_2I_2
9) tetrasulfur dinitride S_4N_2
10) silicon dioxide SiO_2
11) diboron tetrabromide B_2Br_4

Polarity

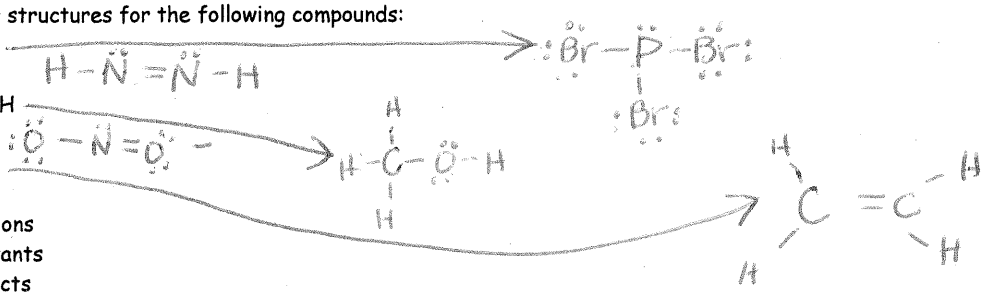
For each of the following pairs of molecules, determine which is most polar and explain your reason for making this choice:

1)	carbon disulfide	OR	sulfur difluoride
2)	nitrogen trichloride	OR	oxygen dichloride
3)	boron trihydride	OR	ammonia
4)	chlorine	OR	phosphorus trichloride
5)	silicon dioxide	OR	carbon dioxide — both are nonpolar
6)	methane	OR	CH_2Cl_2
7)	silicon tetrabromide	OR	HCN
8)	nitrogen trifluoride	OR	phosphorus trifluoride

Lewis structures

Draw the Lewis structures for the following compounds:

1) PBr_3
2) N_2H_2
3) CH_3OH
4) NO_2^{-1}
5) C_2H_4



Chapter 10

Chemical reactions
- Reactants
- Products

Word equations
Skeleton equations
Balanced chemical equations
Types of reactions
Predicting products
Complete ionic and net ionic equations

Practice problems

Balancing equations

Balance the equations below:

1) $1\ N_2 + 3\ H_2 \rightarrow 2\ NH_3$
2) $2\ KClO_3 \rightarrow 2\ KCl + 3\ O_2$
3) $2\ NaCl + 1\ F_2 \rightarrow 2\ NaF + 1\ Cl_2$
4) $2\ H_2 + 1\ O_2 \rightarrow 2\ H_2O$
5) $1\ Pb(OH)_2 + 2\ HCl \rightarrow 2\ H_2O + 1\ PbCl_2$
6) $2\ AlBr_3 + 3\ K_2SO_4 \rightarrow 6\ KBr + 1\ Al_2(SO_4)_3$
7) $1\ CH_4 + 2\ O_2 \rightarrow 1\ CO_2 + 2\ H_2O$
8) $1\ C_3H_8 + 5\ O_2 \rightarrow 3\ CO_2 + 4\ H_2O$
9) $2\ C_8H_{18} + 25\ O_2 \rightarrow 16\ CO_2 + 18\ H_2O$
10) $1\ FeCl_3 + 3\ NaOH \rightarrow 1\ Fe(OH)_3 + 3\ NaCl$
11) $4\ P + 5\ O_2 \rightarrow 2\ P_2O_5$
12) $2\ Na + 2\ H_2O \rightarrow 2\ NaOH + 1\ H_2$
13) $2\ Ag_2O \rightarrow 4\ Ag + 1\ O_2$
14) $1\ S_8 + 12\ O_2 \rightarrow 8\ SO_3$
15) $6\ CO_2 + 6\ H_2O \rightarrow 1\ C_6H_{12}O_6 + 6\ O_2$
16) $1\ K + 1\ MgBr \rightarrow 1\ KBr + 1\ Mg$
17) $2\ HCl + 1\ CaCO_3 \rightarrow 1\ CaCl_2 + 1\ H_2O + 1\ CO_2$
18) $1\ HNO_3 + 1\ NaHCO_3 \rightarrow 1\ NaNO_3 + 1\ H_2O + 1\ CO_2$
19) $2\ H_2O + 1\ O_2 \rightarrow 2\ H_2O_2$
20) $2\ NaBr + 1\ CaF_2 \rightarrow 2\ NaF + 1\ CaBr_2$
21) $1\ H_2SO_4 + 2\ NaNO_2 \rightarrow 2\ HNO_2 + 1\ Na_2SO_4$

Word equations

Write the word equations below as chemical equations and balance:

1) Zinc and lead (II) nitrate react to form zinc nitrate and lead. $Zn + Pb(NO_3)_2 \rightarrow Zn(NO_3)_2 + Pb$
2) Aluminum bromide and chlorine gas react to form aluminum chloride and bromine gas. $2AlBr_3 + 3Cl_2 \rightarrow 2AlCl_3 + 3Br_2$
3) Sodium phosphate and calcium chloride react to form calcium phosphate and sodium chloride. $2Na_3PO_4 + 3CaCl_2 \rightarrow 6NaCl + Ca_3(PO_4)_2$
4) Potassium metal and chlorine gas combine to form potassium chloride. $2K + Cl_2 \rightarrow 2KCl$