1. Atomic Structure Review

1. How will an atom change if you change the number of:

a) Protons? different element

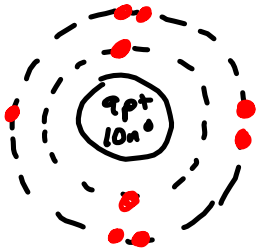
b) Electrons? different charge

c) Neutrons? " mass

2. Draw a Bohr Model for Fluorine.

#9
mass = 19

9p+
9e-
10n°



2. Isotopes Intro

1. What is an isotope?

= u ≠

Same element, ≠ n°

2. Neon has two major isotopes, Neon-20 and Neon-22. If you took a sample of Neon atoms which isotope do you think there would be more atoms of? ***(Hint: look at your periodic table)***

20 → average is closer to 20

3. Calculating Average Mass

Neon has two major isotopes, Neon-20 and Neon-22. You took a sample of 250 Neon atoms and found the following information:

Out of 250 neon atoms,

- **225 were Neon-20**
- **25 were Neon-22.**

What is the average atomic mass of Neon?

(0.9)
$20 \times \frac{225}{250} = 18.0$

$22 \times \frac{25}{250} = 2.2$
(0.1)

20.2 amu
u

4. Naming Covalent

1. Name the following Chemicals:
   a) CF_4 Carbon tetrafluoride
   b) NO_3 nitrogen trioxide
   c) N_3F_2 trinitrogen difluoride
   d) N_2O_7 dinitrogen heptoxide

2. Write the formula for the following Chemicals:
   a) Dinitrogen pentoxide
   N_2O_5
   b) Silicon tetrachloride
   $SiCl_4$
   c) Sulphur hexafluoride
   SF_6
   d) Iodine
   I_2

5. Naming Covalent & Binary Ionic

1. Name the following Chemicals:

a) NO_3 nitrogen trioxide

b) Cl_2 chlorine

c) Al Aluminum

d) Na_2S Sodium Sulphide

2. Write the formula for the following Chemicals:

a) Bromine Br_2

b) Magnesium phosphide Mg^{2+} P^{3-} Mg_3P_2

c) Aluminum nitride Al^{3+} N^{3-} AlN

d) Beryllium hydride Be^{2+} H^- BeH_2

6. Naming Covalent, Ionic w/ Transition Metals

Nitrogen N_2

Lead (IV) sulphide PbS_2 (Pb^{4+} S^{2-})

Magnesium chloride $MgCl_2$ (Mg^{2+} Cl^-)

Dinitrogen Heptoxide N_2O_7

Cu_2O Copper (I) oxide ($+2$ $2-$)

P_4 phosphorus

PBr_3 Phosphorus tribromide

K_2O Potassium oxide

7. Naming Mixed

Hydrogen H_2

Lead (II) sulphate $PbSO_4$

Iron (III) hydroxide $Fe(OH)_3$

Copper (II) oxide CuO

Aluminum citrate $AlC_6H_5O_7$

Nickel (II) carbonate $NiCO_3$

$Pb(OH)_2$ lead(II) hydroxide

SO_4 Sulphur tetraoxide

$BaCO_3$ Barium Carbonate

$CuCr_2O_7$ Copper(II) dichromate

$Co(HCO_3)_2$ Cobalt(II) bicarbonate

$K_2Cr_2O_7$ potassium dichromate

8. Naming Mixed

Iron Fe

Lead (II) persulphate $PbSO_5$

Iron (II) hydroxide $Fe(OH)_2$

Copper (I) oxide Cu_2O

Magnesium citrate $Mg_3(C_6H_5O_7)_2$

Nickel (II) carbonite $NiCO_2$

$Pb(OH)_4$ lead(IV) hydroxide

$Pb(SO_5)_2$ lead(IV) persulphate

$BaCO_2$ Barium carbonite

$CuCrO_4$ Copper(II) Chromate

$Mn(HCO_3)_2$ Manganese(II) bicarbonate

$K_2Cr_2O_7$ potassium dichromate

9. Naming Mixed

Tin (IV) hydrogen sulphite $Sn(HSO_3)_4$ Neon Ne

Lead (II) persulphate $PbSO_5$ Nitrogen N_2

Dinitrogen heptoxide N_2O_7 Nickel (II) percarbonate $NiCO_4$

PbO_2 Lead(IV) oxide Cu_2SO_4 Copper(I) Sulphate

NO_3 Nitrogen trioxide $Mg(HCO_3)_2$ Magnesium bicarbonate

$BaCO_2$ Barium Carbonite NiO Nickel(II) oxide

10. Writing & Balancing Reactions

1. Write the balanced reaction given the following word equations:

Pb^{2+} SO_4^{2-} Na^+ Cl^-

a) Lead(II) sulphate + Sodium chloride --> Sodium sulphate + Lead(II) chloride

$PbSO_4 + 2NaCl \longrightarrow Na_2SO_4 + PbCl_2$ D.R.

b) Propane (C_3H_8) + Oxygen gas --> Carbon dioxide + Water

$C_3H_8 + 5O_2 \longrightarrow 3CO_2 + 4H_2O$ Comb.

14. Writing & Balancing Reactions

1. Write the balanced reaction given the following word equations:

a) Lead (II) Nitrate + Sodium oxide --> Sodium Nitrate + Lead(II) Oxide

$$Pb(NO_3)_2 + Na_2O \rightarrow 2\,NaNO_3 + PbO$$

b) Zinc + Magnesium Phosphate --> Zinc Phosphate + Magnesium

$$3\,Zn + Mg_3(PO_4)_2 \rightarrow Zn_3(PO_4)_2 + 3\,Mg$$

12. Average mass review & Predicting Products

1. Calculate the average atomic mass of chlorine given the following relative abundances:

Cl-35 --> 75%

Cl-37 --> 25%

$35 \times \frac{75}{100} = 26.25$

$37 \times \frac{25}{100} = 9.25$

$26.25 + 9.25 = 35.5\ u$

2. Write the complete balanced reaction between lead (II) nitrate and Potassium iodide.

K^+ I^- Pb^{2+} NO_3^-

$$Pb(NO_3)_2 + 2KI \rightarrow PbI_2 + 2KNO_3$$

13. Predicting Products

Lead (II) sulphide reacts with phosphorus. Write the balanced reaction and state the type of reaction

$3PbS + 2P \longrightarrow Pb_3P_2 + 3S$

lead(II) phosphide sulphur

Single Replacement

14. Predicting Products & Molar Mass

Write the balanced equation, state the type of reaction and name the products for the the reaction of ***Calcium phosphite with silver perchlorate.***

D.R.

$Ca_3(PO_3)_2 + 6AgClO_4 \longrightarrow 2Ag_3PO_3 + 3Ca(ClO_4)_2$

silver phosphite Calcium perchlorate

For the compound NaOH find the:

a) Molecular mass 40.01 amu

b) Molar mass 40.01 g/mol

15. Molar mass & Intro to Conversions

1. Given Iron(II) hydroxide, find the: $Fe(OH)_2$
   a) molecular mass

   89.82 amu

   b) Molar mass

   89.82 u

   c) If you have about 45g of NaOH, how many moles would you have?

   ≈ 0.5 mol

2. Write the balanced reaction between Bromine and sodium chloride. State the type of reaction.