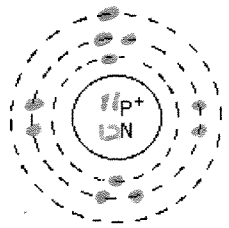
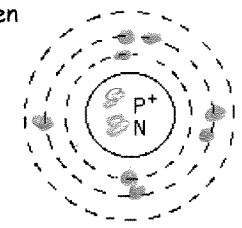
Bohr models of neutral atoms

Sodium



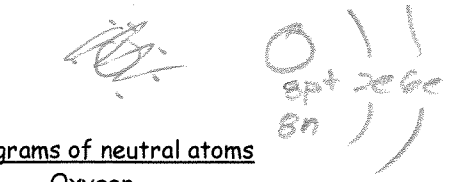
Oxygen



Condensed Bohr models of neutral atoms

Sodium

Oxygen



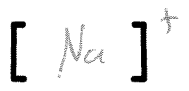
Lewis dot diagrams of neutral atoms

Sodium

Oxygen

Lewis dot diagrams of IONS

Sodium



Oxygen

Define

anion − charge gained e⁻

cation + charge − lost e⁻

Acids, bases and salts:

Define:

Acids pH < 7 contains H @ front

Bases pH > 7 contains OH @ end

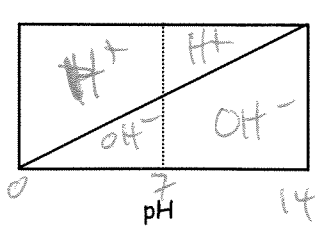
Salts pH = 7

Acids and bases identification:

Describe how to determine whether a substance is an acid or a base.

use a pH indicator

pH scale: complete graph



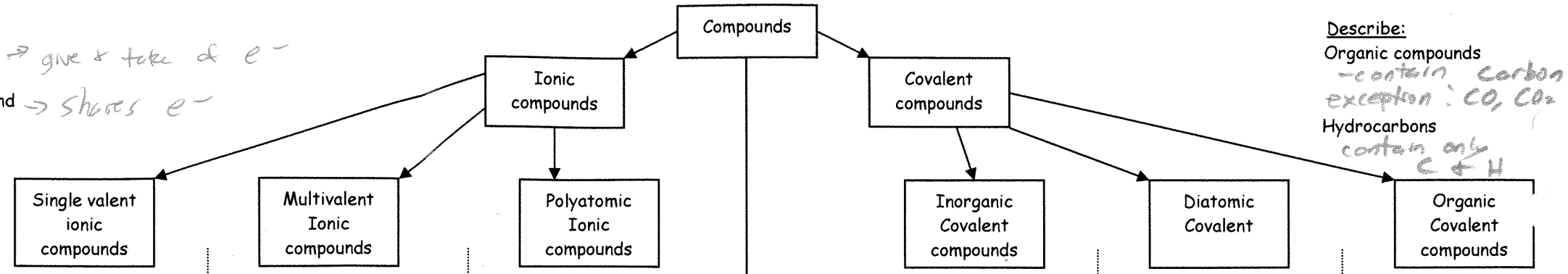
pH of 3 is how many times more acidic than a pH of 6?

10^3

Describe:

Ionic bond → give & take of e⁻

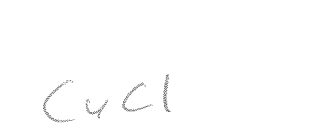
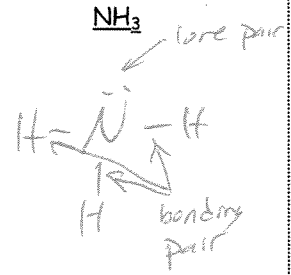
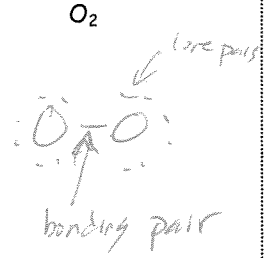
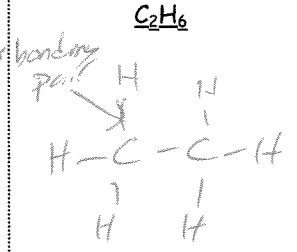
Covalent bond → shares e⁻



Describe:

Organic compounds – contain carbon exception: CO, CO₂

Hydrocarbons contain only C & H

	Single valent ionic compounds	Multivalent Ionic compounds	Polyatomic Ionic compounds	Inorganic Covalent compounds	Diatomic Covalent	Organic Covalent compounds
Example	lithium + oxygen	iron II + sulfur	ammonium carbonate	NH_3	O_2	C_2H_6
Lewis dot Diagram						
Formula	Li_2O	FeS	$(NH_4)^+$			
Name	Lithium oxide	Iron (II) sulfide	ammonium carbonate			
Example:	magnesium + nitrogen	copper I chlorine	potassium dichromate			
Lewis dot Diagram						
Formula	Mg_3N_2	CuCl	$K_2Cr_2O_7$			
Name	Magnesium nitride	Copper (I) chloride	potassium dichromate			
Structural Diagram (show bonding and lone pairs)						
Ball and stick model						
Space filling Model						
Name				nitrogen trihydride		dicarbon hexahydride

What is the 'Gen' rule?

Isotopes are the Gen's

Chemical Reactions

Conservation of mass – define

mass of reactants = mass of products

Balancing chemical reactions

$2KOH + H_2SO_4 \rightarrow K_2SO_4 + 2H_2O$

Factors that affect the rate of a chemical reaction:

1. Concentration of reactants: inc. rate if more [ ]
2. Surface area: more SA ⇒ inc. rate
3. Temperature: inc. temp ⇒ inc. rate
4. Catalysts: inc. rate

Enzymes: inc. rate

Types of chemical reactions – show an example

1. Synthesis: $A + B \rightarrow AB$
2. Decomposition: $AB \rightarrow A + B$
3. Single replacement: $AB + C \rightarrow AC + B$
4. Double replacement: $AB + CD \rightarrow AD + BC$
5. Neutralization reaction: $HCl + NaOH \rightarrow NaCl + H_2O$
6. Combustion reaction: $C_xH_y + O_2 \rightarrow CO_2 + H_2O$
7. Metal oxide in water: make acid
8. Non-metal oxide in water: make H_2O

Predict the products: $AgNO_3 + NaOH \rightarrow AgOH + NaNO_3$

Predict the products and balance the reaction: $2AgNO_3 + CoCl_2 \rightarrow 2AgCl + Co(NO_3)_2$