

Things you should know from Grade 10 Chemistry

Periodic Table

1. How does the period number relate to atomic structure?

The period number refers to the number of shells

2. What do elements of the same family have in common?

a. Same chemical reactivity and similar physical properties

3. Find Barium. Determine the number of electrons, protons, neutrons, electron shells, valence electrons.

a. 56

b. 56

c. $137 - 56 = 81$

d. 6

e. 2

4. Name two different ways that chemicals can form bonds.

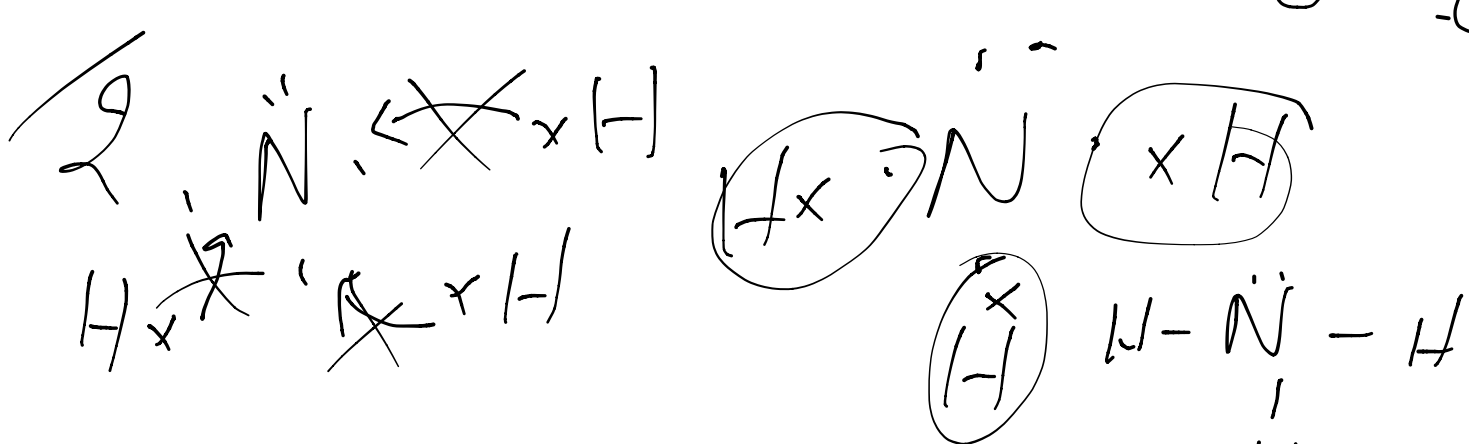
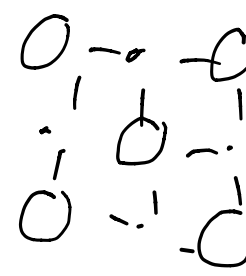
a. Transfer electrons = ionic bonding

b. Share electrons = covalent bonding

5. Why don't solid ionic compounds conduct electricity?

a. Ions are fixed into position therefore no movement in charged particles

6. Model the bonding that occurs between nitrogen and hydrogen.



7. Compare cations and anions.

- 2 a. Cations are positively charged ions
b. Anions are negatively charged ions

8. Name the following



i. Magnesium iodide



i. Iron (II) bromide



i. Phosphorus pentachloride



i. Calcium carbonate



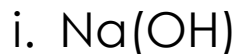
i. Aluminum sulfide

9. Write the formula for the following

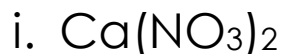
a. Potassium oxide



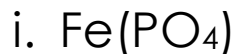
b. Sodium hydroxide



c. Calcium nitrate



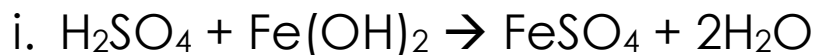
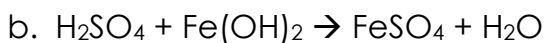
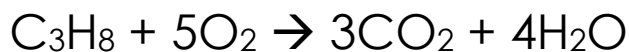
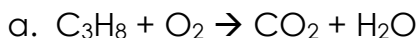
d. Iron (III) phosphate



e. Carbon tetrachloride



10. Balance the following



Chemical Reactions

11. What is the difference between physical and chemical change?

Change of state (melt, evap, condense, sublimate, dissolve)

A new substance being formed – signs of chemical change

12. Name four types of chemical reactions

Synthesis

Decomposition

Single Displacement

Double Displacement - Neutralization

Combustion / Oxidation

13. What are the products of the following reactions

a. Sodium and Oxygen \rightarrow Na_2O

b. Magnesium and copper (II) sulfate \rightarrow copper and magnesium sulfate

14. What is the general word equation for the combustion of octane (C_8H_{18})?

Hydrocarbon + oxygen \rightarrow carbon dioxide and water

15. What health concerns prevent barbeques from being brought inside?

Production of carbon monoxide from incomplete combustion

Acids and Bases

16. How can pH determine if a solution is an acid or a base?

acids have pH values from 0-6

bases have pH values 8-14

2

17. What other tests can be performed to determine if a solution is acidic, basic or neutral?

Reactions with metals, carbonates, conductivity tests

	Acid	Base	Neutral
Litmus paper	red	blue	no change
Phenolphthalein	clear	pink	clear
Bromothymol blue	yellow	blue	green

18. How is concentration of hydrogen ions related to the pH scale?

As more hydrogen ions are present the lower the value of the pH scale

19. What are two unique reactions of acids?

Metal + Acid → hydrogen gas

Acid + Carbonate → carbon dioxide gas and water

20. What is the general word equation for a neutralization reaction?

Acid + Base → water + ionic compound (salt)

21. What is a salt?

Any ionic compound