

Things you should know from Grade 10 Chemistry

Periodic Table

1. How is the periodic table arranged?

a. By atomic number, similar chemical properties

How does the period number relate to atomic structure?

b. The period number refers to the number of shells the atom has

How is the group number related?

c. Number of valence electrons

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

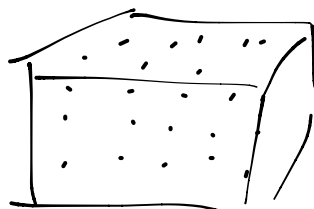
4. Name two different ways that chemicals can form bonds.

a. Transfer electrons = ionic bonding

b. Share electrons = covalent bonding

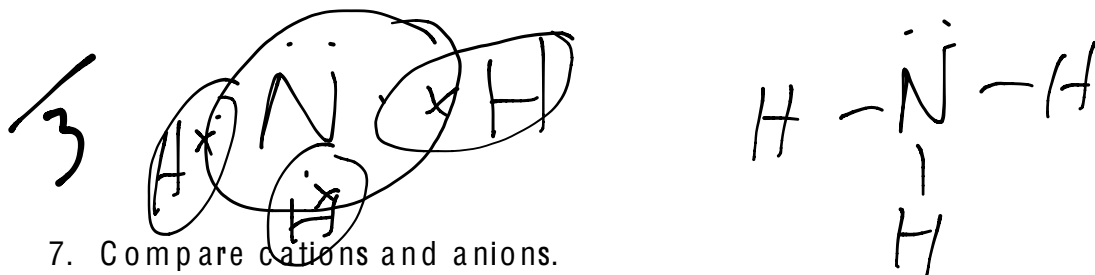
5. Why don't solid ionic compounds conduct electricity?

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





6. Demonstrate nitrogen and hydrogen combining in a reaction.



7. Compare cations and anions.

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- Cations are positively charged ions
 - Anions are negatively charged ions

8. Name the following

a. MgI_2

i. Magnesium iodide

b. FeBr_2

i. Iron (II) bromide

c. PCl_5

i. Phosphorus pentachloride

9. Write the formula for the following

a. Potassium oxide

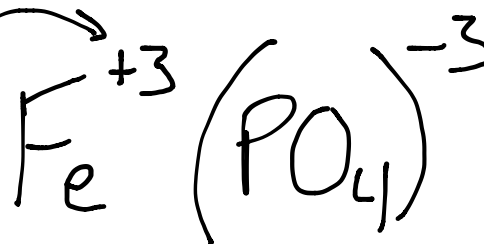
i. K_2O

b. Sodium hydroxide

i. $\text{Na}(\text{OH})$

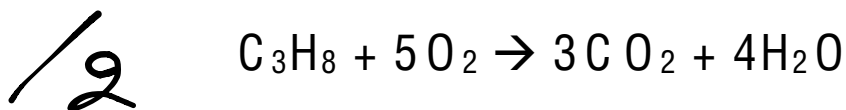
c. Iron (III) phosphate

i. $\text{Fe}(\text{PO}_4)$

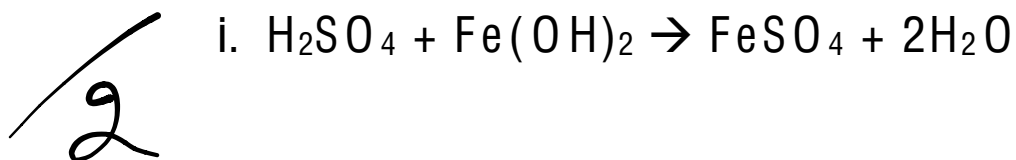


10. Balance the following

a. $\text{C}_3\text{H}_8 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$



b. $\text{H}_2\text{SO}_4 + \text{Fe}(\text{OH})_2 \rightarrow \text{FeSO}_4 + \text{H}_2\text{O}$



Chemical Reactions

11. Describe the difference between exothermic and endothermic reactions.

Exothermic reactions get cold by absorbing energy
Endothermic reactions get hot by releasing energy

12. Name four types of chemical reactions

Synthesis

Decomposition

Single Displacement

Double Displacement - Neutralization

Combustion / Oxidation

13. List four factors that affect the rate of a reaction?

a. Temperature

b. Concentration

c. Catalysts

d. Surface area – particles versus clumps

14. What is an activity series?

A list of metals or non-metals ranking them from most reactive to least reactive

15. What is the general word equation for the combustion of a hydrocarbon?

Hydrocarbon + oxygen → carbon dioxide and water

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

Production of carbon monoxide from incomplete combustion

Acids and Bases

17. What does pH mean? How does pH determine if a solution is an acid or a base?

pH is a value that describes the acidity of a substance, acids have pH values from 0-6 and bases have pH values 8-14

18. What is an indicator? Name three and list their results in acidic, basic and neutral solutions?

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

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

Reactions with metals, carbonates, conductivity tests

20. 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

21. How are percent ionization and pH related in both acids and bases?

As more acid ionizes more H ions are produced and the pH gets lower

As more base produces more OH ions the pH increases

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

Acid + Base \rightarrow water and an ionic compound

23. What is a salt?

Any ionic compound

