End of Topic Formative Revision Test

Year 8 Chemical Sciences

Multichoice Q's

- Which of the following statements best describes carbon dioxide gas
  - It is a clear, odourless gas that goes 'pop' near a flame
  - It is a clear, odourless compound that can put out a flame
  - It is a clear, odourless element that can put out a flame
  - It is a clear, odourless gas that is lighter than air
- Which of the following statements best describes oxygen?
  - It is a clear, odourless element that is produced by plants
  - It is a clear, odourless gas that can put out a flame
  - It is a clear, odourless gas that is lighter than air
  - It is a clear, odourless compound that is produced by plants

Multichoice Q's

- Which of the following statements best describes hydrogen?
  - It is a clear, odourless gas that is heavier than air
  - It is a clear, odourless gas that is used by plants to produce oxygen
  - It is a clear, odourless, abundant element that goes 'pop' near a flame
  - It is a clear, odourless compound that can put out a flame
- When you bubble or blow carbon dioxide through lime water it:
  - Turns from clear to a yellow colour
  - Turns from clear to a blue colour
  - Turns from clear to a white colour
  - Does not change colour

Activity 19: Observations

- Point the open end of one of the test tubes downwards and away from any person.
  - Remove the stopper.
  - Count slowly to ten.
  - Get your partner to hold a lighted match close to the open end

- Carry out a similar test but this time hold the test tube so that the open end faces upwards.
  - Remove the stopper,
  - Count slowly to ten,
  - Try igniting the gas with the lighted match.

- Record the colour and odour of hydrogen gas

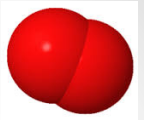
Multichoice Q's

- The presence of a CATALYST in a chemical reaction:
  - Increases the rate of a chemical reaction while undergoing change
  - Decreases the rate of a chemical reaction with no change to the catalyst
  - Increases the rate of a chemical reaction with no change to the catalyst
  - Decreases the rate of a chemical reaction while undergoing change
- Hydrogen gas is produced via the following reaction; zinc + hydrochloric acid -> zinc chloride plus hydrogen. Which of the following statements is true about this reaction?

$$Zn + 2HCl \rightarrow ZnCl_2 + H_2$$

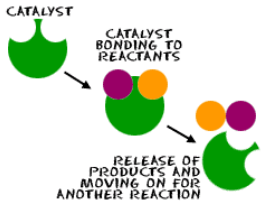
  - Zinc chloride is a reactant and hydrochloric acid is the source of the hydrogen
  - Hydrogen is a product, zinc is a reactant and hydrochloric acid is the source of the hydrogen
  - Zinc is a product and zinc chloride is a reactant
  - Hydrochloric acid is a product and zinc chloride is a reactant

Oxygen



- Catalyst?
  - INCREASE the rate of a chemical reaction
  - Nothing happens to the catalyst

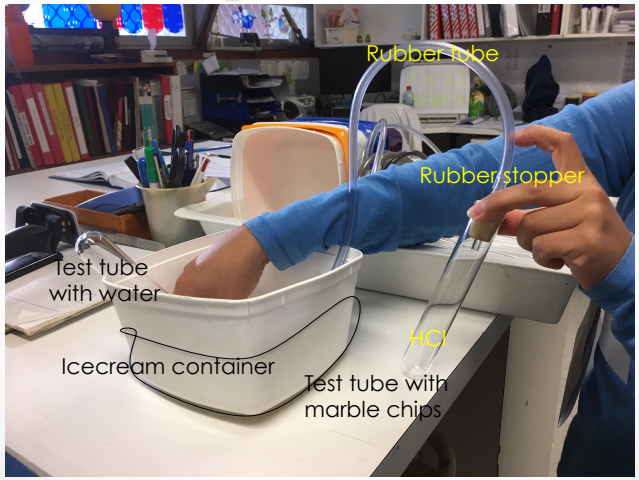
http://www.chem4kids.com/files/react_catalyst.html



Multichoice Q's

- Which of the following statements best describes a FAIR TEST?
  - The are three (3) variables involved; uncontrolled, dependent and co-dependent
  - Requires at least TWO factors to be changed at a time while keeping all other conditions the same
  - Requires ONE factor to be changed at a time while keeping all other conditions the same
  - Requires ONE factor to be changed at a time while changing all other conditions
- When graphing your data which of the following statements is most correct
  - The dependent variable is measured on the horizontal axis
  - The dependent variable is measured on the vertical axis
  - The independent variable is measured on the vertical axis
  - Both a and c are correct

Gas production



Kinetic Theory of Matter

	Physical State	Particle movement
	Gas	Really fast
	Solid	Slow
	Liquid	Fast

Kinetic Theory of Matter

	Process
	Condensation
	Melting
	Evaporation
	Freezing
	Sublimation

Atoms and Elements

1. An Element is a substance made up of MANY types of atoms	False
2. Sulphur is an element	True
3. Zinc sulphide is an element	False
4. Metals are malleable and ductile	True
5. Non-metals conduct electricity	
6. Carbon is a metallic element	False
7. Non-metals are brittle	True
8. Metals conduct heat	True

Not really for Gas
Pure water NOT

Metal or Non-metal?

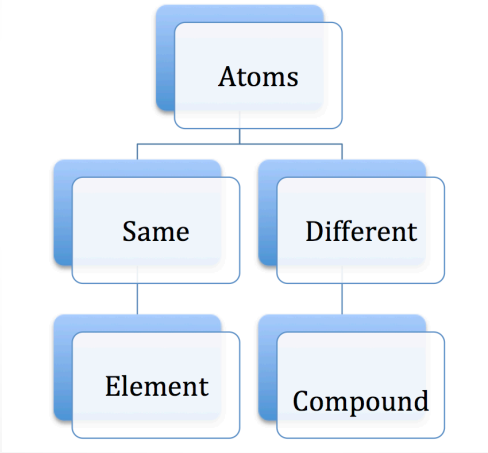
- Examples
  - Aluminium
  - Iron
  - Mercury
  - Gold
  - Silver

- Properties
  - Shiny
  - Solid at room temp
  - Conduct heat & electricity
  - Malleable
    - Hammer into sheets
  - Ductile
    - Stretched into wires

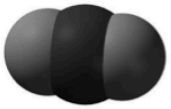
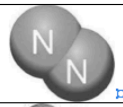
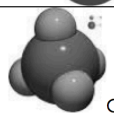
- Examples
  - Helium
  - Carbon
    - Burnt matches
  - Bromine

- Properties
  - Solid or gas at room temp
  - Dull (not shiny)
  - Do not conduct heat & electricity
  - Brittle
    - Break easily

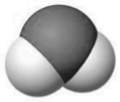
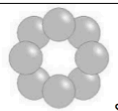
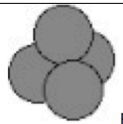
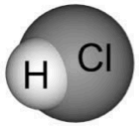
Molecules and Mixtures



Molecules and Mixtures

 C_{60}	Molecular Elements
 CO_2	Molecular Compound
	Molecular Elements
 CH_4	Molecular Compound

Molecules and Mixtures

 H_2O	Molecular Compound
 S_8	Molecular Elements
 P_4	Molecular Elements
	Molecular Compound

Iron and Sulphur

- Explain how you could separate the iron and sulphur mixture. Include what you understand about mixtures in your answer.
  - Magnet
  - Can be separated
  - Mixture
- Is the heated iron and sulphur a Mixture or a Compound. Give a reason for your answer that includes what you know about chemical changes. Include a WORD equation of what is happening
  - Compound
  - Chemical Reaction due to the heating which means nature of substance changed

Iron plus sulphur gives iron sulphide

Chemical Formula

Name	Formula	Sodium atoms (Na)	Hydrogen atoms (H)	Carbon atoms (C)	Sulfur atoms (S)	Oxygen atoms (O)	Nitrogen atoms (N)	Chloride atoms (Cl)	Phosphorous atoms (P)
Glucose	$C_6H_{12}O_6$		12	6		6			
Sea Salt	NaCl	1						1	
Ammonia	NH_3		3				1		
Formic acid	C_2H_3COOH		4	3		2			
Hydrochloric Acid	HCl		1					1	
Carbon Dioxide	CO_2			1		2			
Water	H_2O		2			1			
Vinegar	CH_3COOH		4	2		2			
Bicarb Soda	$NaHCO_3$	1	1	1		3			
Methyl alcohol	CH_3OH		4	1		1			
Nitric acid	HNO_3		1			3	1		
Energy moleculeATP	$C_{10}H_{14}N_5O_{13}P_3$		16	10		13	5		3
Insulin	$C_{256}H_{387}N_{65}O_{79}S_6$		387	256	6	79	65		

Ionic Compounds

- When a metal atom binds chemically to a non-metal atom this is called an IONIC compound.
- The non-metal atom has a name change. The atom iodine changes to IODIDE
- If zinc binds to chlorine you get the compound ZINC CHLORIDE
- When lead binds to bromine you get the compound LEAD BROMIDE
- Potassium iodide is made up of POTASSIUM atoms chemically bound to IODINE atoms

Hypotheses

- Carbon dioxide is a pollutant (green house gas). Use all the information you have learnt about carbon dioxide production, uses and detection to design an experiment that will be able to detect if carbon dioxide is being produced in an underground cave that you want to explore. Write a hypothesis.

The Periodic table

- Which period is nitrogen found in? PERIOD 2
- What substance is represented by Mg? MAGNESIUM
- What group is copper found in? GROUP 11
- Which side of the periodic table are the metals found? LEFT HAND SIDE
- What period is calcium found in? PERIOD 4
- What substance is represented by K? POTASSIUM
- Is hydrogen a metal or non-metal? NON METAL
- If you combine sodium and chloride what ionic compound do you end up with? SODIUM CHLORIDE
- What group is sulphur found in? GROUP 16
- What group is zinc found in? GROUP 12
- When you combine hydrogen and oxygen what molecule do you get? WATER (H_2O)

The Periodic table

If we know that the air we breathe is 70% nitrogen and the elements get heavier the further down the periodic table that are found, use this information to explain why helium is often used in balloons to make them float higher?