

science and technology practical part 1 & 2 , std 10th @8149166563 suhas patil ,rtvm, Aurangabad .

Science & Technology PRACTICAL Part -1

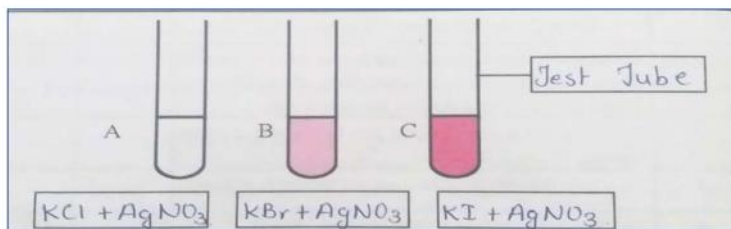
PRACTICAL NO. :1

Title of the Experiments: To identify the chloride , bromide and iodide ions from the given salts.

Requirements of Experiments : Test tubes, stand etc.

Chemicals : Silver Nitrate , solutions of Potassium Chloride , Potassium bromide and potassium iodide.

Diagram of experiment setup :



Readings in Observations table:

Test tube	Chemical reaction	Colour of precipitate	Ion
A	$\text{KCl}_{(aq)} + \text{AgNO}_{3(aq)} \rightarrow \text{KNO}_{3(aq)} + \text{AgCl}_{(s)} \downarrow$	white	Chloride (Cl^-)
B	$\text{KBr}_{(aq)} + \text{AgNO}_{3(aq)} \rightarrow \text{KNO}_{3(aq)} + \text{AgBr}_{(s)} \downarrow$	Light yellow	Bromide (Br^-)
C	$\text{KI}_{(aq)} + \text{AgNO}_{3(aq)} \rightarrow \text{KNO}_{3(aq)} + \text{AgI}_{(s)} \downarrow$	Bright yellow	Iodide (I^-)

Inference / Result : 1. Ions (halides) are precipitated in all the three reaction in this experiments.

2. elements in the halogen family belonging to 17th group in the periodic table show similarity in their properties.

3. in this experiments, depending on the colour of precipitate, presence of chloride ion, bromide ion , iodide ion are confirmed.

[To identify the chloride, bromide and iodide ions from the given salts](#)



Science & Technology PRACTICAL Part -1

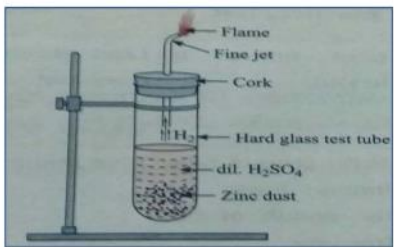
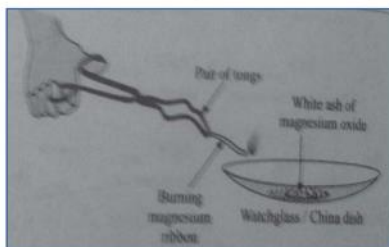
PRACTICAL NO. :2

Title of the Experiments: To identify the type of reaction by studying the reaction and recording observations .

Requirements of Experiments : Beakers ,Test tubes , Pair of tongs, Burner , Glass rod , etc.

Chemicals: Zinc dust, Magnesium strip, dilute Sulphuric Acid.

Diagram of experiment setup :



PART 1: Combustion of magnesium in air .

Reaction : $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO (s)}$

Readings in Observations table:

1. The magnesium ribbon burns with bright luminous flame.
2. a white coloured powder remains behind .

Reaction	Number of reactants	Number of product	Interesting feature of the reaction	Types of reaction.
$2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO (s)}$	2	1	<ol style="list-style-type: none"> 1. Here two reactants and a single product . 2. The magnesium ribbon burns with bright luminous flame. 3. This is chemical change. 	Combination Reaction.

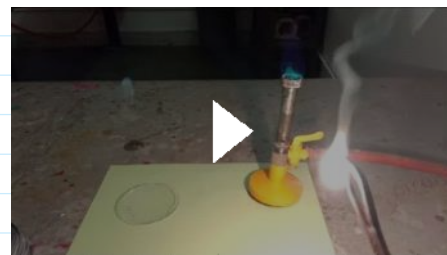
PART 2: Action of dilute sulphuric acid on Zinc .

Reaction : $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$

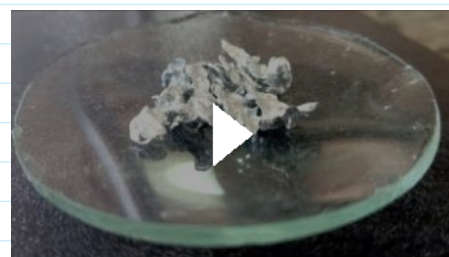
Readings in Observations table:

1. A colourless gas is liberated .
2. a glowing splinter get extinguished and gas burns with blue flame production of a noise.
3. zinc powder disappears and a colourless solution obtained.

[Burning Of Magnesium Ribbon Experiment Chemistry Grade 7 12](#)



[Class 10 | CBSE BOARDS | Chemistry | Reaction of Zinc granules with dilute sulphuric acid](#)



Reaction	Number of reactants	Number of product	Interesting feature of the reaction	Types of reaction.
$\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$	2	2	1. Here two reactant and two product. 2. Hydrogen from H_2SO_4 gets displaced by zinc metal.	Displacement Reaction .

Inference / conclusion :

PART 1: In this reaction magnesium and oxygen these two products react and form a single product that is magnesium oxide , therefore this reaction is combination reaction. New substance is formed so this is chemical change.

PART 2: : In this action of dilute sulphuric acid on zinc, this is displacement reaction more reactive Zn replaces the less reactive H_2 from sulphuric acid means atom or group of atoms in one substance takes place atoms or group of atoms in the other substance to form new substances.

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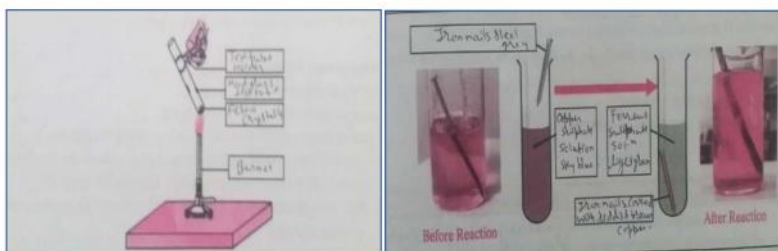
PRACTICAL NO. :3

Title of the Experiments: To observe the following reactions and to classify them into the types combination, displacement, decomposition and double displacement.

Requirements of Experiments : 250ml beaker, dropper, hard glass tube, test tube holder, burner, filter paper, etc.

Chemicals: water, crystals of ferrous sulphate, iron nail, solution of copper sulphate.

Diagram of experiment setup :



Readings in Observations table:

Part -1 : Effect of heat on crystals of ferrous sulphate

Reaction: $2(\text{FeSO}_4 \cdot 7\text{H}_2\text{O})_{(s)} \rightarrow \text{Fe}_2\text{O}_{3(s)} + \text{SO}_{2(g)} + \text{SO}_{3(g)} + 14\text{H}_2\text{O}_{(g)}$

Sr. no.	Experimental procedure	Observations
1	Note the original colour of ferrous sulphate.	pale green
2	Note the colour of the gas evolved on heating.	Colourless gas with pungent smell
3	Note the noise ,if ,any produced the reaction.	Light green – white- dark brown

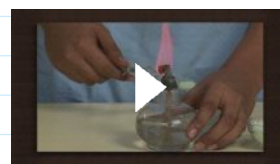
Part -2 : Reaction of solution of copper sulphate with iron nail.

Reaction: $\text{Fe}_{(s)} + \text{CuSO}_{4(aq)} \rightarrow \text{FeSO}_{4(aq)} + \text{Cu}_{(s)}$

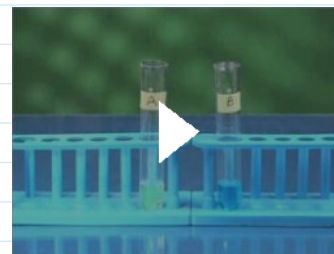
Sr. no.	Experimental procedure	Observations
1	Colour of copper sulphate solution before experiments .	Sky blue
2	Colour of iron nail before the experiments.	Steel grey colour
3	Colour of copper sulphate solution after the experiments .	Light bluish green
4	Colour of iron nail after the experiments.	Reddish brown

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[Decomposition of Ferrous Sulphate](#)



[Reaction of iron nails with copper sulphate solution](#)



Inference / conclusion :

PART 1: 1. On heating the pale green coloured crystals of ferrous sulphate undergo decomposition. A mixture of Fe_2O_3 and SO_2 , SO_3 gases formed.

3. A residue of dark brown colour remains in test tube.

4. This is decomposition reaction.

PART 2: 1. On immersing the steel grey nails in blue coloured copper sulphate solution, they displace Cu from the copper sulphate solution and their colour becomes reddish brown .

2. this is displacement reaction.

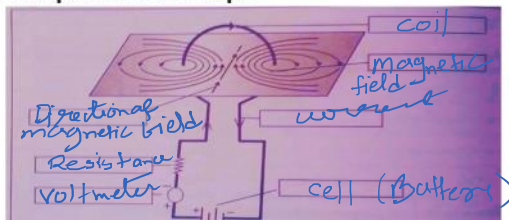
Science & Technology PRACTICAL Part -1

PRACTICAL NO. :4

Title of the Experiments: To study the magnetic field due to electric current flowing through the coil.

Requirements of Experiments : insulated copper wire (24 gauge) , connecting wires, battery, cardboard sheet, iron fillings, etc.

Diagram of experiment setup :



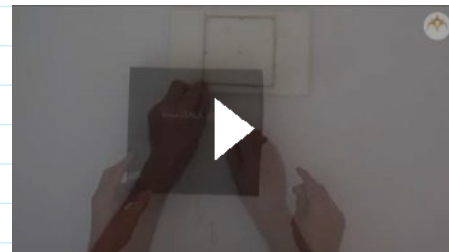
Observations:

1. When the electric current starts flowing through the coil, concentric circles of magnetic lines of force are produced each point on the coil.
2. As we go away from the wire , the concentric circles representing the magnetic lines forces will become larger and larger.
3. As intensity of electric current increases the magnetic lines of force become more clearer.

Inference/ Conclusion :

1. If the current flows through the coil, magnetic lines of forces are produced at each point on the coil.
2. In above experiment , the intensity of magnetic field at any point by a current flowing through a coil , is dependent on current and the number of turns of wire forming a coil.

[To Study The magnetic field due to electric current flowing through the coil](#)



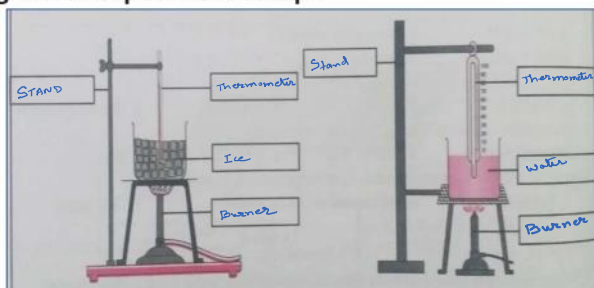
Science & Technology PRACTICAL Part -1

PRACTICAL NO. :5

Title of the Experiments: To study the effect of heat on ice by using a graph .

Requirements of Experiments : glass beaker , ice , thermometer , stand, tripod, spirit lamp, clock , Etc.

Diagram of experiment setup :



Readings in Observations table:

Least count of thermometer = 0°C

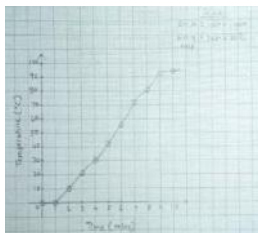
Obervation table :

Time (min.)	Temperature (°c)	Time (min.)	Temperature (°c)	Time (min.)	Temperature (°c)
0	0	10	68	20	100
1	0	11	75		
2	0	12	88		
3	1	13	97		
4	8	14	100		
5	25	15	100		
6	40	16	100		
7	49	17	100		
8	56	18	100		
9	61	19	100		

[To study the effect of heat on ice by using a graph](#)



Graph : on graph paper
Temperature versus time



Inference/conclusion: Heat energy is absorbed during the transformation of ice in to water and water in to vapours , means thermometer shows rise in temperature when all ice melt . when water boil thermometer does not show rise in temperature when water starts boiling .

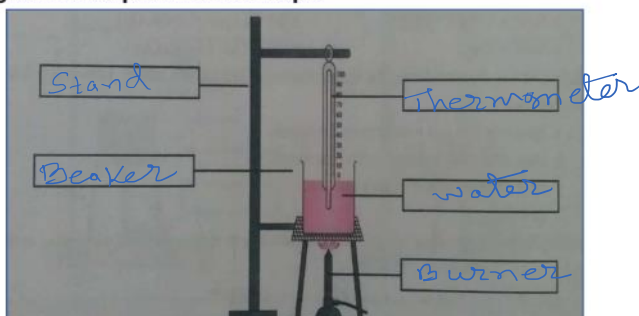
Science & Technology PRACTICAL Part -1

PRACTICAL NO. :6

Title of the Experiments: To measure temperature of hot water during natural cooling and plot the graph of temperature versus time .

Requirements of Experiments : glass beaker, thermometer , stand, tripod, spirit lamp, clock Etc.

Diagram of experiment setup :



Observations:

Initial temperature of water before heating= °c

Readings in Observations table:

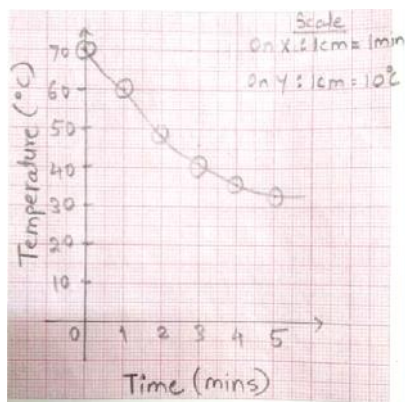
Time (min.)	Temp. (°c)	Time (min.)	Temp (°c)
0	70 °c	9	42 °c
1	65 °c	10	39 °c
2	62 °c	11	37 °c
3	58 °c	12	34 °c
4	56 °c		
5	52 °c		
6	50 °c		
7	47 °c		
8	45 °c		

[To measure temperature of hot water during natural cooling and plot the graph](#)



R

Graph : on graph paper



Temperature versus time

Inference/conclusion:

1. The rate of cooling of water is more when the difference in the temperature of water and the ambience is large.
2. This rate decreases as the temperature of water reduces due to cooling.

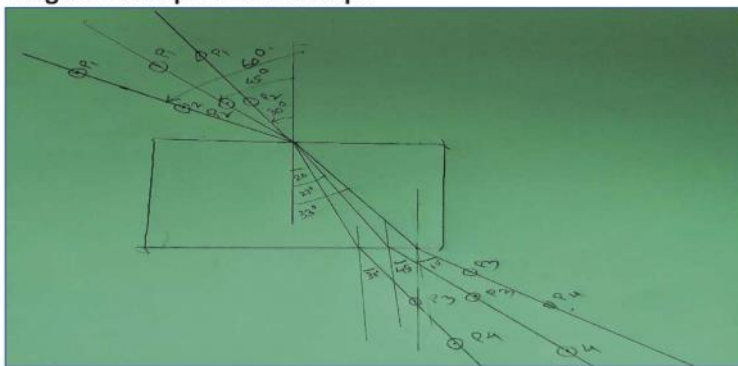
Science & Technology PRACTICAL Part -1

PRACTICAL NO. :7

Title of the Experiments: to verify the laws of refraction of light.

Requirements of Experiments : a glass slab , drawing board, drawing pins, paper pins, drawing paper, etc.

Diagram of experiment setup :



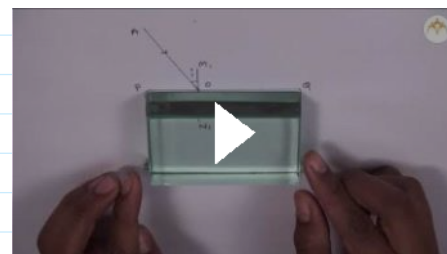
Readings in Observations table:

Sr. no.	Angle of incidence (i)	Angle of refraction (r)	Angle of emergence (e)
1	30°	20°	30°
2	45°	27°	45°
3	60°	33°	60°

Inference / conclusion:

1. When light undergoes refraction through a glass slab , the incident ray and emergent ray are parallel to each other.
2. The angle of incidence and the angle of emergence are of equal measures .

[To verify the laws of refraction of light](#)



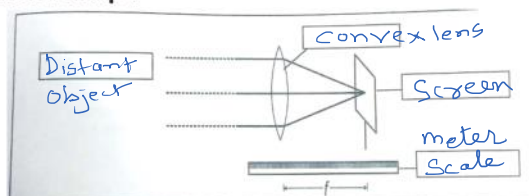
Science & Technology PRACTICAL Part -1

PRACTICAL NO. :8

Title of the Experiments: To obtain the focal length of convex lens.

Requirements of Experiments : convex lens, lens holder, meter scale, screen with stand, etc.

Diagram of experiment setup :



Observation :

Least count of the meter scale :1 mm.

Readings in Observations table:

A. Convex lens front surface facing the object.

No.	Distant object	Distance between lens center and screen
	Building	21 cm
	Gate	21 cm
	Door	21 cm
	Average F_1	21 cm

B. Convex lens Back surface facing the object.

No.	Distant object	Distance between lens center and screen
	Building	21 cm
	Gate	21 cm
	Door	21 cm
	Average F_2	21 cm

Inference/ conclusion :

1. First focal length of convex lens (F_1) = 21 cm
2. Second focal length of convex lens (F_2) = 21 cm
3. From above, is the lens used in the experiment a symmetric lens? yes.
If yes then lens is symmetry lens.

[To obtain the focal length of a convex lens](#)

