BUDHA DAL PUBLIC SCHOOL PATIALAANNUALCURRICULUMPLANSESSION2024–2025

CLASS:XSUBJECT:CHEMISTRY

LESSONPLAN

CLASS-X SUBJECT-SCIENCE(CHEMISTRY)

Month-April

ClassTransaction-15Periods

ChemicalReactionandEquations

Objective–

Torecognisethephysicalandchemicalprocessesassociatedwithbiologicalandindustrialprocess.

Tounderstandchemicalprocessesoccurringindailylife.

Toapplytheprincipleofconservationofmasstobalancechemicalreaction.

PreviousknowledgeTesting–

Studentswouldbeaskedaboutphysicalandchemicalchanges.Dailyl

ifeexampleswouldbediscussed.

VocabularyUsed–

Equations,Reaction,Symbols,Physicalstates,Combustion,precip
itationetc.

ImportantSpellings–

Precipitation, Combination,
Neutralisation,Displacement,Decomposition,ThermalPh
otolysis.

Aids/InnovativeMethodsusedtoexplainthetopic–

WiththehelpofSmartClass(Extramarks)

Learningmethodsandmakingthemlearntheformulasofvarious
chemicalcompoundswhichwouldbeusedinexplainingchaptersandSmart
Class.

Procedure–

Studentswouldbetaughtfirstlythevariousactivitiesrelatedtotypesofchemicalre
actionsandthenBalancingofChemicalEquations.

TypesofChemicalReactions–Combination

Decomposition

- Thermal
- Electrolyte

- Photolytic

Displacement

DoubleDisplacement

OxidationandReduction

Identify Oxidant, Reductants, Oxidising Agent,

ReducingAgents.Manyexamplesforpractisingwouldbegiventoth

em

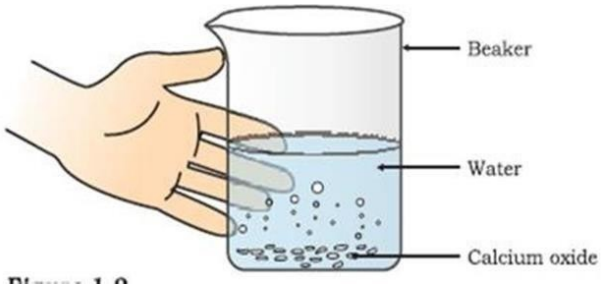
ParticipationofStudents—

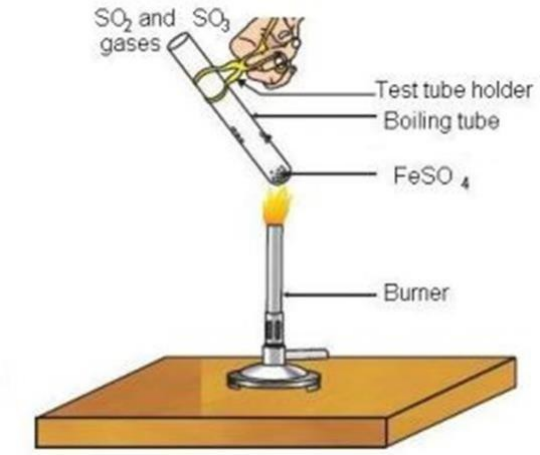
Studentswillbeasked:-

Tosolve/BalancechemicalEquationontheGreenboard.Dayt

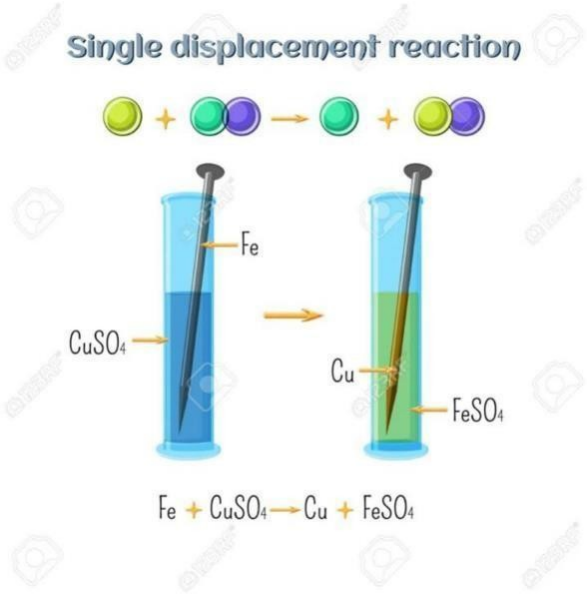
odaylifeexamplesrelatedtochemicalreaction.

CombinationReaction





Decomposition reaction



Recapitulation–

Fromtheabovetopics,followingpointwouldbeclearedtostudents.

Electrolysisofwater

Thermaldecompositionofmanycompounds

Oxidationofsalineandmanymetalswhenkeptinair,whytheybecomeblack

UseofAgarinphotography

Acid,BaseNeutralizationReactions

Assignments–

NCERTIntextandBackexercisequestionswouldbediscussedinclassandgivenasahomeworktostudents.

IntegrationWithOtherDomains–

Duringchemicalreactions,lotofchangesoccurinabeaker/ortesttube.For e.g.Changeincolourofsolution,changeinstateofsubstanceorevolutionofgas,Testtubebecomeshotorcoldthenchemicalreactionoccurs

Theseallabovechangescanbecorrelatedwithart,relatedtocolourchange,Rusting of Iron which occur in daily life shows a change in colour, Texture ofirontoformrust.
BalancingofchemicalequationcanbedonewiththehelpofMathematics

Resources–

SmartClass,Extramarks,NCERTBook,Reference (Pardeep'sPublications)
www.learncbse.in,byjus.com,youtube

LearningOutcome –

Studentswouldbeabletoknow:-

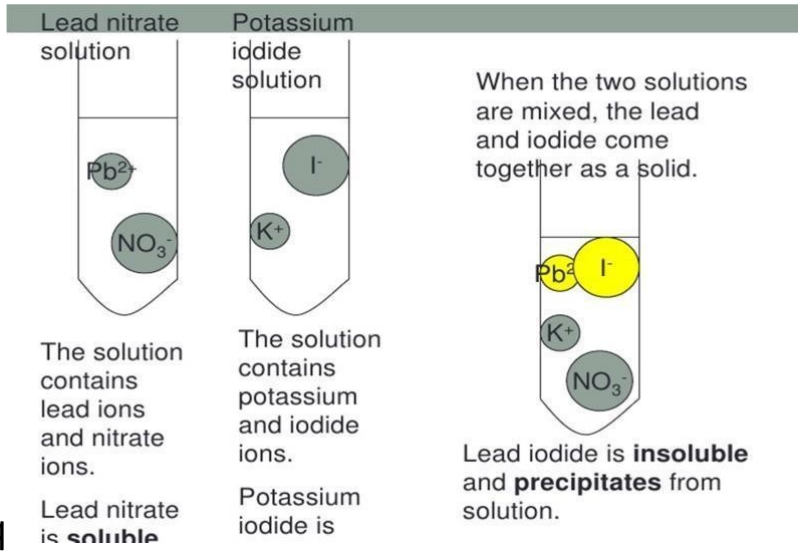
- A complete chemical equation which represents thereactants,productsandtheirphysicalstatessymbolically.
- ?Acombinationanddecompositionreaction.
- ?ExothermicandEndothermicreaction.
- ?Rustingandhowitoccurs.

Coscholasticactivities-

ActivitiesofChemicalReactionsAndEquations–

1. BurningofMagnesiumRibbon

2. MixingofLeadNitrateandKIsolution



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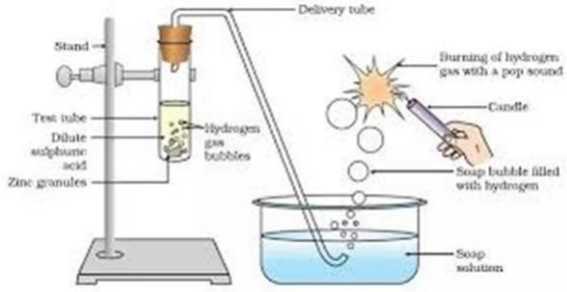
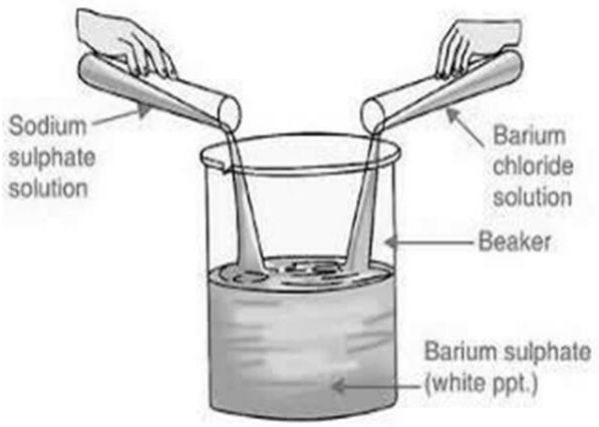
3. ActionofHClonZincMetal

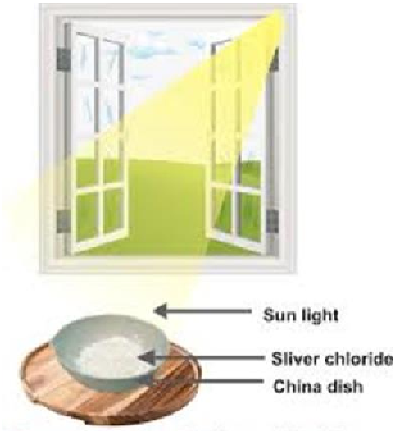


4. ActionofQuicklimeonwater
5. HeatingofFeSO$_4$Crystals
6. HeatingofLeadNitrateCrystals
7. ReactionbetweenCopperMetalandFeSO$_4$Solution

8. Mixing of $BaCl_2$ and Na_2SO_4 Solution



9. Decomposition of AgCl in light



Decomposition pf silver chloride

Feedback/Remedial Teachings–

- Discussion and written practice of fill ups, Assertion Reasons, True/False, Matching Statements, Multiple choice Questions, one word Questions will be done

- Oraldiscussionandwrittentestswillbeconducted

InclusivePracticeandFullParticipationwithoutDiscrimination

LessonwouldbetaughtequallytoallstudentswithoutanydiscriminationAllstudentswould betreatedsame respectivelyofthem economicalstatus.

LESSONPLAN

CLASS-X SUBJECT-SCIENCE(CHEMISTRY)

Month-May/July

ClassTransaction-22Periods

AcidsBasesandSalts

Objectives–

Tolearnthechemicalpropertiesofacidsandbases.

Todescribethemethodsofpreparation,propertiesandusesofBl eachingPowder,BakingSoda,WashingSodaandPOP.

PreviousKnowledgeTesting–

Studentswouldbeaskedaboutcommonacids,bases,saltsandtheirnaturea ndindicatorslikeredlitmus,bluelitmus.

VocabularyUsed–

Phenolphthalein,Methylorange,OlfactoryIndicators, Ph of Salts,BleachingPowder,WashingSoda, PlasterofParis.

ImportantSpellings–

Phenolphthalein, Bleaching Powder, Olfactory Indicators,Sodiumbicarbonate

AlternateMethodsUsed–

SmartClass

ShowactivitiesinlabB

lackBoard

Procedure–

Studentsshouldbetaughtabouteffectofbluelitmus,Redlitmus,Phenolphthalei n, Methyl Orange, indicators on solutions of acids / bases.PropertiesofAcidsandBasesandtheirreactionwithmetals,metal bicarbonateswitheachother,metaloxideswithacids,non–metallicoxideswithbases.

Studentsshouldbetaughtaboutwhathappenswhenacidorbaseisaddedinawat ersolution.

StrengthofAcidsandbaseswiththehelpofpHpaper.

PreparationofNaOH,BleachingPowder($CaOCl_2$),BakingSoda($NaHCO_3$),Wa shingSoda($Na_2CO_3.10H_20$)

AndPOP($CaSO_4.H_2O$)

Recapitulation–

Studentswillbeabletotellaboutallthepropertiesofacidsandbases.

Theywouldbeabletounderstandpropertiesofallchemicalsfromcommons alt.

IntegrationWithOtherDomains–

ConceptofacidsandbasescanbecorrelatedwithBiology.

Wecanfindp H of edible substances and things like saliva etc. Some plants are acidic andbasicinnature.Theycanbeputtovarioususesbasedontheirnature.

This concept can also be integrated with Art because acids/ bases give differentcolourwithdifferentindicators.

Resource-

www.learncbse.in,byjus.com,youtubeL

earningOutcomes –

Studentswouldbeableto:-

Comparechemicalpropertiesofacids/bases.

pHofgivensolutionanditsimportanceindailylife.

Todescribepreparationofdifferentsaltsandtheirusesineverydaylife

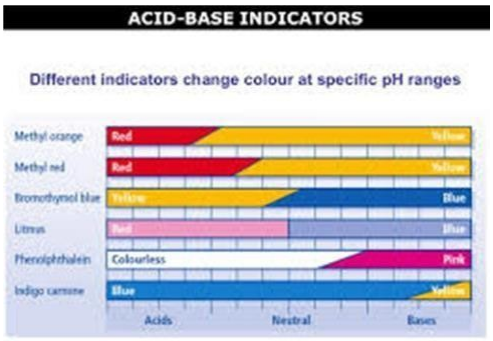
Assignment–

NCERTquestion/AnswerswouldbediscussedandgivenasHomework.

CoscholasticActivities–

Collectsamplesofsaltsandseethechangeincolourofacid/baseindi cators:-

- RedLitmus
- BlueLitmus
- MethylOrange



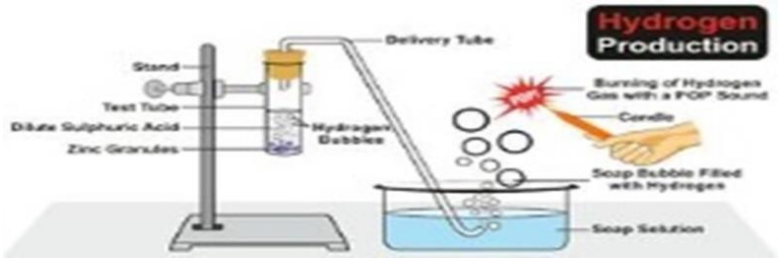
Acid – Base Indicators

Methyl Orange Indicator

In Acid In Base

For example, phenolphthalein is colorless in its HIn form and pink in its In^- form.

Action of H_2SO_4 on Zn granules and test for H_2 gas.



ReactionofMetalCarbonatesandmetalhydrogencarbonateswithacid slikeHClandtestforCO_2gas.

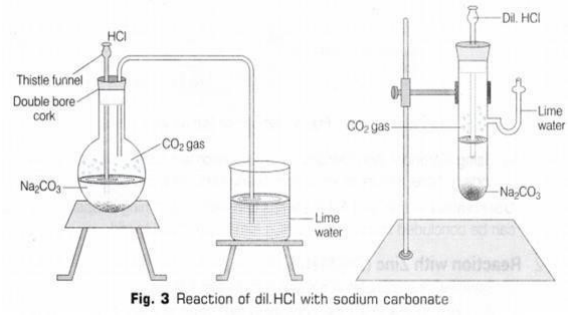


Fig. 3 Reaction of dil.HCl with sodium carbonate

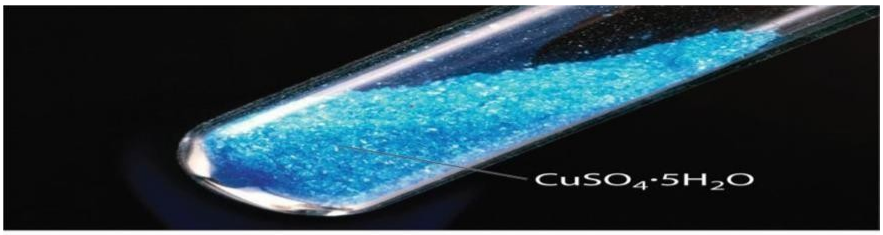
ReactionbetweenNaOH/HCl

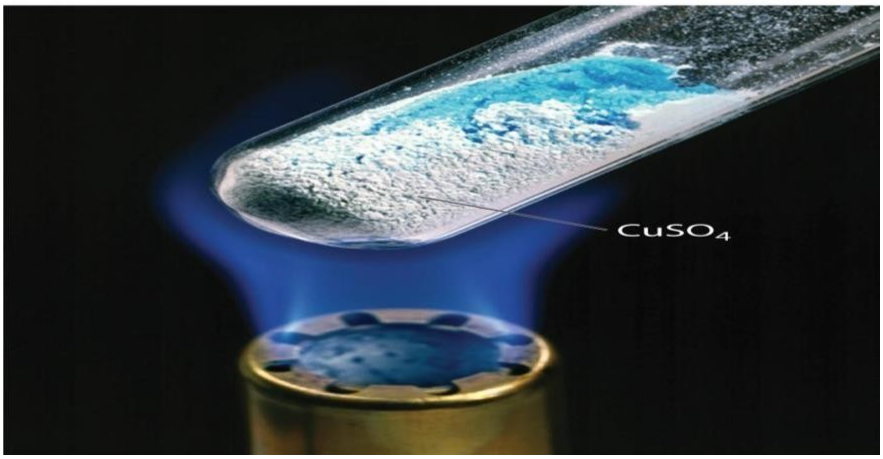
Activitytoshowthatsolutionofacidsi.e.HCl,H_2SO_4conductelectricityandso lutionofglucose,alcoholdoesnotconductactivity.

StrengthofAcidsandBaseswithhelpofpHpaper.

Activitytoshowtheacidic,basic,neutralnatureofsaltswiththehelpofpHpap er.

HeatingofcrystalofCuSO_4.5H_2O





PreparationofGypsumandtellhowitisused.

FeedbackandRemedialTeachings–

- RemedialTeachingmethodtobeadoptedforstudentswhohavefallenbehindinstudies.
- Retests,AssignmentandpracticeQuestionswouldbegivenforpreparation

InclusivePracticeandFullParticipationwithoutDiscrimination–

LessonwouldbetaughtequallytoallstudentswithoutanydiscriminationAllstudentswouldbetreatedsame respectivelyofthem economicalstatus.

SustainableDevelopmentGoals-

ByTeachingthisChapterwemaypreparestudentstojointhegoalsofgoodhealthandwellbeingastheycametoknowthenatureofthesubstancesusedineverydaylife.

LESSONPLAN

CLASS-X SUBJECT-SCIENCE(CHEMISTRY)

Month-July/August

ClassTransaction-18Periods

MetalsAndNon-Metals

Objectives-

Bystudyingthischapter,studentswouldbeableto:-

Understandthedifferencebetweenmetalsandnon-metals,mineralsandores

Variousstepsofmetallurgy

ChemicalReactionsinvolvedinextractionofmetalsPropertie sofAlloys

PreviousKnowledgeTesting–

This lesson requires the following knowledge –

Metalsareobtainedfrommineralsandores

Metalsareminedfromearth.Theyaeimpureandneedtobepurified

Alloysaremixedmetals

Vocabulary-

Mineral,Ore,Gangue,Roasting,Calcination

ImportantSpelling–

Electrolyte,Refining,Corrosion,Smelting,Reduction,ThermiteReaction,Alloys

InnovativeMethods/Resources–

?ExtraMarks/SmartClass
?NCERT Book
?ReferenceBook(Pradeep'sPublication)
?GreenBoard
?Varioussamplesofmetalswouldbeshowntostudentsinthelab

Procedure–

StudentswouldbetoldaboutPhysicalandChemicalPropertiesofmetalsandnon-metals

Reactionofmetals/nonmetalswouldbediscussedwithH_2O/salts/acids/bases.

Reactivityserieswouldbediscussed

Electron dot structure of compoundsExtractionofmetalswouldbediscussed

StudentsParticipation–

? Studentswouldbeabletotellthedifferencebetweenmetals andnon-metals

? Theywouldbeabletodifferentiatebetweenvariousprocesse sofmet7allurgy.

Recapitulation–

Studentswouldbeabletorecapitulate:-

Thepropertiesofmetalsandnon-metalsVariousmethodsofmetallurgy

Studentswouldbeabletotellwhichmetalismorereactiveandwhichislessr
eactivebasedontheirknowledgeofreactivityseries.

Integrationwithotherdomain–

ThistopiccanbecorelatedwithEnglishlanguageandmathematical conceptofcomparison.

Sincemetalsarelustrous,soitcanberelatedwithdifferentcolourofart.

Resource-

www.learncbse.in,byjus.com,youtube

LearningOutcome-

Studentswouldbeabletostatethevariousstepsinobtainingmetals fromore⅞

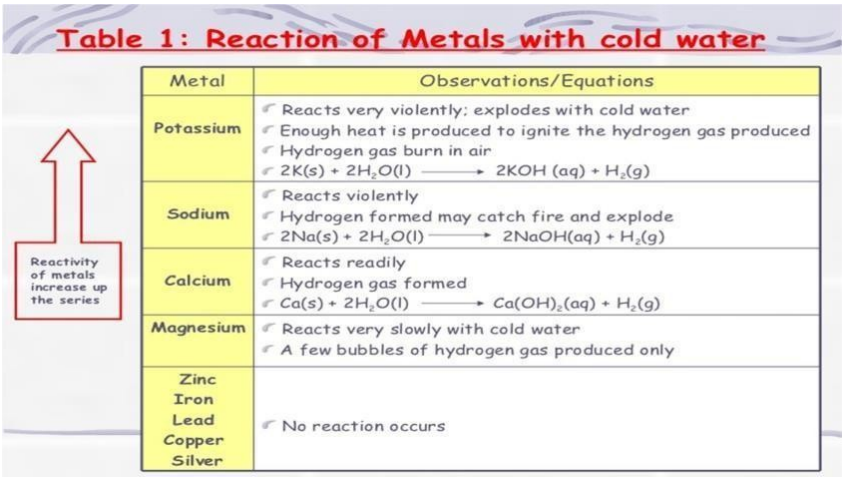
Canwritechemicalreactionsinvolvedinextraction.Giveex amplesofcommonlyalloys

ProcessofelectrolyticrefiningwiththehelpoflabelledDiagram

Co-ScholasticActivities–

Toseeandexaminevarioussamplesofmetalslike Na,Mg,Fe,etc.Burningofm etalslikeMg,Na,etc.

ReactionofMetalswithwater.



Reactingmetalswithsolutionsofothermetalssalts

Reaction of Metals with Metal Salt Solutions

A more reactive metal displaces a less reactive metal from its salt solution.
(Displacement reaction)

Magnesium displaces copper from copper sulphate solution.

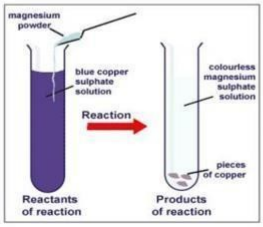
$Mg + CuSO_4 \rightarrow MgSO_4 + Cu$

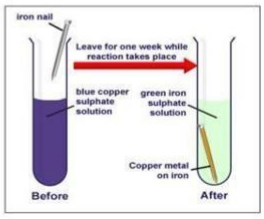
Zinc displaces copper from copper sulphate solution.

$Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$

Iron displaces copper from copper sulphate solution

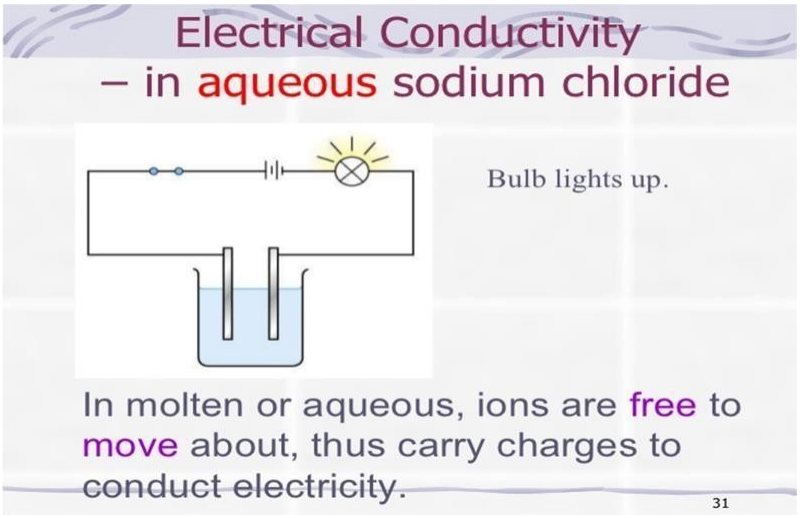
$Fe + CuSO_4 \rightarrow FeSO_4 + Cu$





HeatandelectricalconductivityofMetals

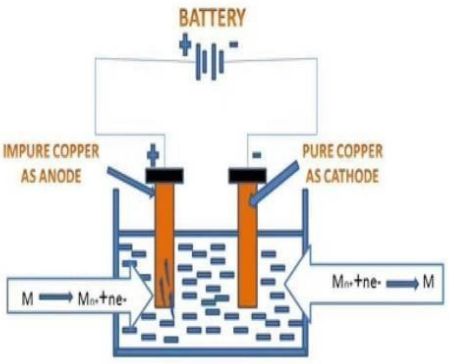
ElectricalconductivityofanaqueoussolutionofSodiumChloride



Refiningofmetalsbyelectrolysis

ELECTROLYTIC REFINING

This method is use for refining of metal like silver, gold, copper, nickel etc.



FeedbackandRemedialTeachings-

- RemedialTeachingmethodtobeadoptedforstudentswh ohavefallenbehindinstudies.
- Retests,AssignmentandpracticeQuestionswouldbegiv enforpreparation

InclusivePracticeandFullParticipationwithoutDi scrimination–

Lessonwouldbetaughtequallytoallstudentswithoutanydiscrimination Allstudentswould betreatedsame respectivelyofthem economicalstatus.

SustainableDevelopmentGoals-

ThroughTeachingthislesson,maypreparestudentstogainthegoalofdecentweakandeconomicgrowthas theycametoknowmetallurgicalprocessandusesofmetals.

LESSONPLAN

CLASS-X SUBJECT-SCIENCE(CHEMISTRY)

Month - August/OctoberClassTransa ction-18Periods

CARBONANDITS COMPOUNDS

Objectives-

Studentswillbeableto

?understandcovalentbondanditstypesanditsformation

?knowreasonsbehinditsversatilenature

?differentiatebetweensaturatedandunsaturatedcompounds

?writeisomersofbutaneandpentane

?knowvariousfunctionalgroupsthatarepresentwhicharesponsiblefordifferentchemicalproperties

Previousknowledgetesting-

Thislessonrequires

?basicknowledgeofstructureofatom

?knowledgeofallotropyandexistenceofcarboninvariousformsasdiamond,graphite,blackcoaletc

?understandvalenceshellandwritingelectronicconfiguration

?knowledgeofcarbonanditscompoundsinourdailylifeasfabric,polymersetc

?requirementofcombustiontotakeplace

?examplesofcarboncompounds

?awarenessregardingsoapsanddetergents

Vocabulary/Importantspellings

? catenation, tetravalency, allotropy, fullerenes, covalent bond,combustion,IUPACnames,isomers,functionalgroups,homologousseries,ethanol,soap,detergent

Innovativemethods/Resources

?smart class, greenboard
?NCERTbook,Pradeep'sreferencebook
?Discussion,quiz,MCQ'setc
www.learncbse.in,byjus.com,youtubeP

rocedure-

? Classwouldstartwithadiscussiononwhattypeofcompoundstudentsobservearoundthem.
? theywillnoticethatmostofthethingsaremadeupofcarbon.Versatilenatureofcarbonwouldbediscussed.
? studentswouldbetoldaboutcovalentbonds,ionicbondsand allotropy of carbon * saturated and unsaturated carboncompoundswouldbediscussed.
?students would be told about functional groups andhomologousseries.*IUPACnameswouldbetaughttothestudents.

Studentparticipation-

? studentswillbeabletomakeelectrondotstructuresofCH_4,C_2H_4,andothercarboncompounds.
? they will be able to describe the process of oxidation,reduction,combustion,andhydrogenationofcarboncompounds
? theywillbeabletonamecarboncompoundsaccordingtoIUPACnomenclature
?theywillbeabletotelldifferencesbetweensoapsanddetergents
? theywillbeabletomakestructuresofcarboncompoundsintheformofstraightchain,ringsandbranches

Recapitulation/Assignment

?

Studentswouldbeabletorecapitulatethenomenclaturerulesandgive namesofcarboncompounds

?

assignmentondifferencebetweensoapanddetergent,saturatedan d unsaturated compounds, graphite and diamond, oxidation andreductionwouldbegiventostudents.

?theywillbeabletoexplaincleaningactionofsoaps

Integrationwithotherdomains–

? Knowledge of structures of diamond, graphite etc integrate the topicwith art and geometrical patterns. It can also be integrated with Englishlanguageandmathematicalconceptofcomparison.

Learningoutcomes-

?

Studentswouldbeabletotellaboutcovalentbonds,elec trondotstructures,ofvariouscarboncompounds.

?

theywillacquireknowledgeofvariousindustrialprocesseslikeoxi dation,hydrogenationetc.

?

theywillknowthedifferencesbetweensoapsanddetergentsandwhic honeisbetterforcleaningpurposes.

?

studentswouldbeabletotellaboutvariousfunctionalgroupsandhowt heycanchangethepropertiesofacompound.

?

theycannameanddrawthestructureofacarboncompoundbase donIUPACnomenclature.

Coscholasticactivities-

?

studentswillcriticallyanalyseandexaminesubstanceslikegra phite,ethanol,aceticacidetc.

?

theywillappreciatetheimportanceofethanoicacidandperf ormactivitiesinthelab.

?

thistopicwillhelptheminbuildingcharacterwhentheywilldiscu ssamongstthemselvesvarioustopicsofthischapter.

theywilllearntopreparesoapinchemistrylabbycollaboratingwitheachother.

Feedback/RemedialTeachings–

- Discussion and written practice of fill ups, Assertion Reasons, True/False,MatchingStatements,MultiplechoiceQuestions,onewordQuestionswillbedone
- Oraldiscussionandwrittentestswillbeconducted

InclusivePracticeandFullParticipationwithout

Discrimination–

LessonwouldbetaughtequallytoallstudentswithoutanydiscriminationAllstudentswould betreatedsame respectivelyofthem economicalstatus.

SustainableDevelopmentGoals-

ByTeachingthisChapter,wemayProceedthemachievingthegoalofcleanwaterandsanitiza
tionaswewillstudytypesofwater,cleansingactionof

Soapsanddetergents