



# Lab Manual MATHEMATICS

Class-IX



Surbhi Mittal

Science Lab Manual Class IX



# Science Lab Manual

Class IX



# Ncert Publications Lab Manual Class 1

**Oswaal Editorial Board**



## **Ncert Publications Lab Manual Class 1:**

CBSE MCQs Chapterwise For Term I & II, Class 12, Mathematics Career Point Kota, 2021-10-12 Strictly as per the new term wise syllabus for Board Examinations to be held in the academic session 2021 22 for class 12 Multiple Choice Questions based on new typologies introduced by the board Stand Alone MCQs MCQs based on Assertion Reason Case based MCQs Include Questions from CBSE official Question Bank released in April 2021 Answer key with Explanations Sample Paper on the latest pattern of Term 1 exam *GURUKUL CBSE CHAPTER WISE BOARD QUESTIONS* ANURAG SINGH, 2020-04-01 THIS BOOK CONSIST OF CBSE CHAPTER WISE BOARD QUESTIONS FROM 2008 2019 **CBSE Class 12th Maths (10 Most likely Question Papers with Solution) By Career Point Kota** Career Point Kota, 2020-07-28 The CBSE has made certain changes in the assessment structure from the session 2019 20 onwards In the new scheme of examination CCE and term system has been replaced with the Internal Assessment Single Annual Exam by CBSE itself Single exam conducted by CBSE will carry 80 marks whereas 20 marks are left to the schools for internal assessment CBSE has issued detailed guidelines on how the internal marks will be divided among different activities From 2019 onwards there will be internal choices in board examinations with increased internal options in the question paper Considering this change now a student has to prepare accordingly for board examinations The new assessment format brought with it excitement as well as anxiety And to help them prepare and excel in their CBSE board examination Career Point Kota has developed a series of 10 Most Likely Question Papers with Solutions The Key Features of Most Likely Question Papers with Solutions Series New OBJECTIVE TYPE question in each paper Syllabus of CBSE 2019 20 Based on the latest CBSE Syllabus Pattern Mind map of each chapter is given to visualize and help acquire a better understanding Important terms facts formulae and quick revision tips are given Covers questions asked in previous year board exams Toppers Answer Sheet as released by CBSE to understand the scoring technique We hope this book will gratify students need for the new CBSE pattern board exam and smoothen their path to success We wish to utilize the opportunity to place on record our special thanks to all the members of the Content Development team for their efforts to create this wonderful book *Oswaal CBSE Question Bank Class 12 Mathematics, Chapterwise and Topicwise Solved Papers For Board Exams 2025* Oswaal Editorial Board, 2024-01-23 Description of the product 100% Updated Syllabus Fully Solved Board Papers we have got you covered with the latest and 100% updated curriculum Crisp Revision with Topic wise Revision Notes Smart Mind Maps Mnemonics Extensive Practice with 3000 Questions Board Marking Scheme Answers to give you 3000 chances to become a champ Concept Clarity with 1000 Concepts 50 Concept Videos for you to learn the cool way with videos and mind blowing concepts NEP 2020 Compliance with Art Integration Competency Based Questions for you to be on the cutting edge of the coolest educational trends **Oswaal CBSE Sample Question Papers Class 12 Mathematics (For 2024 Exam)** Oswaal Editorial Board, 2023-08-03 Description of the product Fresh Relevant with 2024 CBSE SQP Fully Solved Analysed Score Boosting

Insights with 500 Questions 1000 Concepts Insider Tips Techniques with On Tips Notes Mind Maps Mnemonics Exam Ready to Practice with 10 Highly Probable SQPs with Actual Board Answer sheets      **CBSE Class 12th Chemistry (10 Most Likely Question Papers with Solution) By Career Point Kota** Career Point Kota,2020-07-28 The CBSE has made certain changes in the assessment structure from the session 2019 20 onwards In the new scheme of examination CCE and term system has been replaced with the Internal Assessment Single Annual Exam by CBSE itself Single exam conducted by CBSE will carry 80 marks whereas 20 marks are left to the schools for internal assessment CBSE has issued detailed guidelines on how the internal marks will be divided among different activities From 2019 onwards there will be internal choices in board examinations with increased internal options in the question paper Considering this change now a student has to prepare accordingly for board examinations The new assessment format brought with it excitement as well as anxiety And to help them prepare and excel in their CBSE board examination Career Point Kota has developed a series of 10 Most Likely Question Papers with Solutions The Key Features of Most Likely Question Papers with Solutions Series New OBJECTIVE TYPE question in each paper Syllabus of CBSE 2019 20 Based on the latest CBSE Syllabus Pattern Mind map of each chapter is given to visualize and help acquire a better understanding Important terms facts formulae and quick revision tips are given Covers questions asked in previous year board exams Toppers Answer Sheet as released by CBSE to understand the scoring technique We hope this book will gratify students need for the new CBSE pattern board exam and smoothen their path to success We wish to utilize the opportunity to place on record our special thanks to all the members of the Content Development team for their efforts to create this wonderful book      *Educart CBSE Question Bank Class 10 Computer Application 2024-25 (For 2025 Board Exams)* Educart,2024-06-17 What You Get Time Management ChartsSelf evaluation ChartCompetency based Q sMarking Scheme Charts Educart Computer Applications Class 10 Strictly based on the latest CBSE Curriculum Includes all New Pattern Q s along with case based examples in every chapterComplete preparation with Chapter wise theory and practice questionsCaution and Important Points to really work on common mistakes made during the examSelf practice Questions are added for extensive practice Why choose this book You can find the simplified complete with diagrams flowcharts bullet points and tablesBased on the revised CBSE pattern for competency based questionsEvaluate your performance with the self evaluation charts      *Educart CBSE Question Bank Class 10 Social Science 2024-25 (As per latest CBSE Syllabus 23 Mar 2024)* Educart,Digraj Singh Rajput,2024-06-17 What You Get Time Management ChartsSelf evaluation ChartCompetency based Q sMarking Scheme Charts Educart Social Science Class 10 Strictly based on the latest CBSE CurriculumSpecial focus on Competency based Questions including all New Pattern Q sSimplified NCERT theory with diagram flowcharts bullet points and tablesIncludes Real life Examples for relatability to every NCERT conceptTopper Answers of past 10 year board exams along with Marks Breakdown Tips4 Solved Sample Papers as per the latest Sample paper design released with syllabus Why choose this book You can find the simplified complete with

diagrams flowcharts bullet points and tables Based on the revised CBSE pattern for competency based questions Evaluate your performance with the self evaluation charts *Practical/Laboratory Manual Chemistry Class XI based on NCERT guidelines by Dr. S. C. Rastogi & Er. Meera Goyal* Dr. S. C. Rastogi , Er. Meera Goyal, 2020-06-23 An Excellent Book in Accordance with the latest syllabus for Class 11 Prescribed by CBSE NCERT and Adopted by Various State Education Boards

**A Basic Laboratory Techniques**

- 1 To cut a glass tube or glass rod
- 2 To bend the glass rod at an angle
- 3 To draw a glass jet from a glass tube
- 4 To bore a cork and fit a glass tube into it

**B Characterisation and Purification of Chemical Substances**

- 1 To determine the melting point of the given unknown organic compound and its identification simple laboratory technique
- 2 To determine the boiling point of a given liquid when available in small quantity simple laboratory method
- 3 To prepare crystals of pure potash alum  $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O$  from the given impure sample
- 4 To prepare the pure crystals of copper sulphate from the given crude sample
- 5 To prepare pure crystals of benzoic acid from a given impure sample

**C Measurement of pH Values**

- 1 To determine the pH value of vegetable juices fruit juices tap water and washing soda by using universal pH paper
- 2 To determine and compare the pH values of solutions of strong acid HCl and weak acid  $CH_3COOH$  of same concentration
- 3 To study the pH change in the titration of strong base Vs strong acid by using universal indicator paper
- 4 To study the pH change by common ion  $CH_3COO^-$  ion in case of weak acid  $CH_3COOH$
- 5 To determine the change in pH value of weak base  $NH_4OH$  in presence of a common ion  $NH_4^+$

**D Chemical Equilibrium**

- 1 To study the shift in equilibrium between ferric ions and thiocyanate ions by changing the concentrations of either of the ions
- 2 To study the shift in equilibrium between  $Co(H_2O)_6^{2+}$  and  $Cl^-$  ions by changing the concentrations of either of the ions

**E Quantitative Analysis**

- 1 To prepare M 10 oxalic acid solution by direct weighing method
- 2 To prepare M 10 solution of sodium carbonate by direct weighing method
- 3 To determine the strength of given solution of sodium hydroxide by titrating it against N 10 or M 20 solution of oxalic acid
- 4 To determine the strength of a given solution of hydrochloric acid by titrating it against a standard N 10 or M 20 sodium carbonate solution

**F Qualitative Analysis**

- 1 Analysis of Anions
- 2 Analysis of Cations

**G Detection of Elements in Organic Compounds**

- 1 To detect the presence of nitrogen sulphur and halogens in a given organic compound by Lassaigne's test
- 2 To detect the presence of nitrogen sulphur and halogens in the given organic compound sample number by Lassaigne's test

**INVESTIGATORY PROJECTS**

**A Checking of Bacterial Contamination in Water**

- 1 To check the bacterial contamination in drinking water by testing sulphide ions

**B Methods of Water Purification**

- 1 To purify water from suspended impurities by using sedimentation
- 2 To purify water by boiling
- 3 To purify water by distillation method
- 4 To purify water by reverse osmosis technique
- 5 To purify water by GAC method
- 6 To purify water by bleach treatment
- 7 To purify water by oxidising agent
- 8 To purify water by ozone treatment method

**C Water Analysis**

- 1 To test the hardness of different water samples

**D Foaming Capacity of Various Soaps**

- 1 To compare the foaming capacity of different washing soaps
- 2 To study the effect of addition of sodium carbonate on foaming capacity of washing soap

**E Tea Analysis**

- 1 To study the acidity of different samples

of tea leaves tea by using pH paper F Analysis of Fruits and Vegetable Juices 1 To analyse the fruit and vegetable juices for the constituent present in them G Rate of Evaporation 1 To study the rate of evaporation of different liquids H Effect of Acids and Bases on Tensile Strength of Fibres 1 To compare the tensile strength of natural fibres and synthetic fibres 2 To study the effect of acids and bases on tensile strength of different fibres Log Antilog Table *Indian National Bibliography*, 2015-07 Indian Books in Print, 2002 Practical/Laboratory Manual Biology Class XI based on NCERT guidelines by Dr. Sunita Bhagia & Megha Bansal Dr. Sunita Bhagia ,Megha Bansal,2020-06-23 An Excellent Book in Accordance with the latest syllabus for Class 11 Prescribed by CBSE NCERT and Adopted by Various State Education Boards Introduction 1 Necessary equipments chemicals and other things for practical work 2 General Instructions for practical work 3 Special Instructions for practical note book Drawing and Recording 4 Special Instructions for spotting EXPERIMENTS 1 To study and describe the flowering plant belonging to family one from each of the families a Solanaceae b Fabaceae c Liliaceae 2 To prepare temporary slide of transverse section of dicot monocot stem dicot monocot root 3 To study osmosis by potato osmometer 4 To study of plasmolysis in epidermal peel of Tradescantial or Rhoeo leaf 5 To study the distribution of stomata on the upper and lower surface of a leaf 6 To compare the rate of transpiration in upper and lower surface of the leaf 7 To test the presence of sugars Glucose Sucrose and Starch proteins and fats and to detect their presence in suitable plant and animal materials 8 To study the separation of plant pigments by paper chromatography 9 To study the rate of respiration in flower buds leaf tissue and germinating seeds 10A To test presence of urea in urine 10B To test presence of sugar in urine 10C To detect presence of albumin in urine 10D To test urine for presence of bile salt SPOTTING 1 Study of compound microscope 2 To study the plant specimen and identification with reasons Bacteria Oscillatoria Spirogyra Rhizopus Mushroom Yeast Liverwort Moss Fern Pine One Monocotyledonous plant One dicotyledonous plant and one Lichen 3 Study of animal specimens 1 Amoeba 2 Hydra 3 Fasciola Hepatica Liver fluke 4 Ascaris Lumbricoides 5 Hirudinaria Granulosa 6 Pheretima Posthuma 7 Palaemon 8 Bombyx Mori 9 Apis Indica Honeybee 10 Pila Globosa Snail 11 Asterias Starfish 12 Scoliodon Dogfish Shark 13 Labeo Rohita Rohu 14 Rana Tigrina Frog 15 Hemidactylus Lizard 16 Columba Livia Pigeon 17 Orytolagus Cuniculus Rabbit 4A To study the plant tissues Palisade cells Guard cells Parenchyma Collenchyma Sclerenchyma Xylem and Phloem through prepared slide 4B To study the animal tissue squamous epithelium muscles fibres through prepared slide 4C To study mammalian blood smear by temporary permanent slide 5 Study of mitosis in root tip of onion 6 Study of different modification in root stem and leaves 7 To study and identify different types of inflorescence Racemose and Cymose 8 To study imbibition in seed raisins 9 To demonstrate that anaerobic respiration take place in the absence of air 10 To study human skeleton and joints 11 To study the external features of cockroach with help of model or chart **Practical/Laboratory Manual Chemistry Class XII based on NCERT guidelines by Dr. S. C. Rastogi, Er. Meera Goyal** Dr. S. C. Rastogi ,Er. Meera Goyal,2020-06-22 A Surface Chemistry 1 To prepare colloidal solution sol of starch 2 To prepare a colloidal solution of egg albumin 3 To prepare

colloidal solution of gum 4 To prepare colloidal solution of aluminium hydroxide  $\text{Al(OH)}_3$  5 To prepare colloidal solution of ferric hydroxide  $\text{Fe(OH)}_3$  6 To prepare colloidal solution of arsenious sulphide  $\text{As}_2\text{S}_3$  7 To purify a freshly prepared sol by dialysis 8 To compare the effectiveness of different common oils Castor oil cotton seed oil coconut oil kerosene oil mustard oil in forming emulsions

**Viva Voce B Chemical Kinetics**

- 1 To study the effect of concentration on the rate of reaction between sodium thiosulphate and hydrochloric acid
- 2 To study the effect of temperature on the rate of reaction between sodium thiosulphate and hydrochloric acid
- 3 To study the rate of reaction of iodide ions with hydrogen peroxide at different concentrations of iodide ions
- 4 To study the rate of reaction between potassium iodate  $\text{KIO}_3$  and sodium sulphite  $\text{Na}_2\text{SO}_3$  using starch solution as indicator

**Viva Voce C Thermochemistry**

- 1 Determine the enthalpy of dissolution of copper sulphate  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$  in water at Room temperature
- 2 To determine the enthalpy of neutralization of the reaction between  $\text{HCl}$  and  $\text{NaOH}$
- 3 To determine enthalpy change during the interaction between acetone and chloroform

**Viva Voce D Electrochemistry**

- 1 To study the variation of cell potential in  $\text{Zn}|\text{Zn}^{2+}||\text{Cu}^{2+}|\text{Cu}$  with change in concentration of electrolytes  $\text{CuSO}_4$  or  $\text{ZnSO}_4$  at room temperature

**Viva Voce E Chromatography**

- 1 To separate the coloured components pigment present in the given extract of leaves and flowers by ascending paper chromatography and find their  $R_f$  values
- 2 To separate the coloured components present in the mixture of red and blue inks by ascending paper chromatography and find their  $R_f$  values
- 3 To separate  $\text{Co}^{2+}$  and  $\text{Ni}^{2+}$  ions present in the given mixture by using ascending paper chromatography and determine their  $R_f$  values

**Viva Voce F Preparation of Inorganic Compounds**

- 1 Preparation of double salt of ferrous ammonium sulphate Mohr's salt from ferrous sulphate and ammonium sulphate
- 2 To prepare a pure sample of potash alum fitkari
- 3 Preparation of crystals of potassium ferric oxalate or potassium trioxalato ferrate III

**Viva Voce G Preparation of Organic Compounds**

- 1 Preparation of iodoform from ethyl alcohol or acetone
- 2 Preparation of acetanilide in laboratory
- 3 Preparation of  $\beta$ -Naphthol aniline dye
- 4 To prepare a pure sample of dibenzalacetone
- 5 To prepare a pure sample of p-nitro acetanilide

**Viva Voce H Tests for the Functional Groups Present in Organic Compounds**

**Viva Voce I Study of Carbohydrates Fats and Proteins**

- 1 To study simple reactions of carbohydrate
- 2 To study simple reactions of fats
- 3 To study simple reactions of proteins
- 4 To investigate presence of carbohydrates fats and proteins in food stuffs

**Viva Voce J Volumetric Analysis**

- 1 To prepare 250 ml of  $\text{M}/10$  solution of oxalic acid
- 2 To prepare 250 ml of  $\text{M}/10$  solution of ferrous ammonium sulphate
- 3 Prepare  $\text{M}/20$  solution of oxalic acid with its help find out the molarity and strength of the given solution of potassium permanganate
- 4 Prepare  $\text{M}/20$  solution of Mohr's salt using this solution determine the molarity and strength of potassium permanganate solution

**Viva Voce K Qualitative Analysis**

**Viva Voce INVESTIGATORY PROJECTS**

- 1 To study the presence of oxalate ions in guava fruit at different stages of ripening
- 2 To study the quantity of casein present in different samples of milk
- 3 Preparation of soyabean milk and its comparison with natural milk with respect to curd formation effect of temperature etc
- 4 To study the effect of potassium bisulphite as food preservative at various concentrations
- 5 To study the digestion of starch by salivary amylase and the effect of pH and

temperature on it 6 To study and compare the rate of fermentation of the following materials wheat flour gram flour potato juice and carrot juice 7 To extract essential oils present in saunf aniseed ajwain corum illaichi cardomom 8 To detect the presence of adulteration in fat oil and butter 9 To investigate the presence of NO<sub>2</sub> in brinjal

**Practical/Laboratory Manual Biology Class XII based on NCERT guidelines by Dr. Sunita Bhagia & Megha Bansal** Dr. Sunita Bhagia, Megha Bansal, 2020-06-22

**A List of Experiments**

1 Study pollen germination on a slide 2 Collect and study soil from at least two different sites and study them for texture moisture content pH and water holding capacity Correlate with the kinds of plants found in them 3 Collect water from two different water bodies around you and study them for pH clarity and presence of any living organism 4 Study the presence of suspended particulate matter in air at two widely different sites 5 Study the plant population density by quadrat method 6 Study the plant population frequency by quadrat method 7 Prepare a temporary mount of onion root tip to study mitosis 8 Study the effect of different temperatures and three different pH on the activity of salivary amylase on starch 9 Isolate DNA from available plant material such as spinach green pea seeds papaya etc

**B Study observation of the following**

Spotting 1 Flowers adapted to pollination by different agencies wind insects birds 2 Pollen germination on stigma through a permanent slide 3 Identification of stages of gamete development i e T S of testis and T S of ovary through permanent slides from grasshopper mice 4 Meiosis in onion bud cell or grasshopper testis through permanent slides 5 T S of blastula through permanent slides Mammalian 6 Mendelian inheritance using seeds of different colour sizes of any plant 7 Prepare pedigree charts of any one of the genetic traits such as rolling of tongue blood groups ear lobes widow s peak and colour blindness 8 Controlled pollination emasculation tagging and bagging 9 Common disease causing organisms like Ascaris Entamoeba Plasmodium any fungus causing ringworm through permanent slides or specimens Comment on symptoms of diseases that they cause 10 Two plants and two animals model virtual images found in xeric conditions Comment upon their morphological adaptations 11 Two plants and two animals models virtual images found in aquatic conditions Comment

**Content EXPERIMENTS**

1 To study pollen germination on slide 2 To study the texture moisture content pH and waterHolding Capacity of soils collected from different sites 3 To collect water from different water bodies and study them for pH Clarity and presence of living organisms 4 To study the presence of suspended particulate matter in air at different sites 5 To study plant population density by quadrat method 6 To study plant population frequency by quadrat method 7 To study various stages of mitosis in root tip of onion by preparing slide in acetocarmine 8 To study effect of different temperature and three different pH onthe activity of salivary amylase 9 To study the isolation of DNA from available plant material such as spinach green pea seeds papaya etc

**SPOTTING**

1 Pollination in flowers 2 Pollen germination 3 Slides of mammal tissues 4 Meiosis cell division 5 T S of Blastula 6 Mendel s inheritance laws 7 Pedigree chart 8 Controlled pollination 9 Common disease causing organisms 10 Xerophytic adaptation 11 Aquatic adaptation

**Practical/Laboratory Manual Chemistry Class - XI** Er. Meera Goyal, 2021-05-29

1 Basic Laboratory Techniques 1 To cut a glass tube or glass rod 2



To bend the glass rod at an angle 3 To draw a glass jet from a glass tube 4 To bore a cork and fit a glass tube into it Viva Voce 2 Characterisation and Purification of Chemical Substances 1 To determine the melting point of the given unknown organic compound and its identification simple laboratory technique Viva Voce 2 To determine the boiling point of a given liquid when available in small quantity simple laboratory method Viva Voce 3 To prepare crystals of pure potash alum  $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O$  from the given impure sample 4 To prepare the pure crystals of copper sulphate from the given crude sample 5 To prepare pure crystals of benzoic acid from a given impure sample Viva Voce 3 Measurement of pH Values 1 To determine the pH value of vegetable juices fruit juices tap water and washing soda by using universal pH paper 2 To determine and compare the pH values of solutions of strong acid HCl and weak acid  $CH_3COOH$  of same concentration 3 To study the pH change in the titration of strong base Vs strong acid by using universal indicator paper 4 To study the pH change by common ion  $CH_3COO^-$  ion in case of weak acid  $CH_3COOH$  5 To determine the change in pH value of weak base  $NH_4OH$  in presence of a common ion  $NH_4^+$  Viva Voce 4 Chemical Equilibrium 1 To study the shift in equilibrium between ferric ions and thiocyanate ions by changing the concentrations of either of the ions 2 To study the shift in equilibrium between  $Co(H_2O)_6^{2+}$  and  $Cl^-$  ions by changing the concentrations of either of the ions Viva Voce 5 Quantitative Analysis 1 To prepare M 10 oxalic acid solution by direct weighing method 2 To prepare M 10 solution of sodium carbonate by direct weighing method 3 To determine the strength of given solution of sodium hydroxide by titrating it against N 10 or M 20 solution of oxalic acid 4 To determine the strength of a given solution of hydrochloric acid by titrating it against a standard N 10 or M 20 sodium carbonate solution Viva Voce 6 Qualitative Analysis Analysis of Anions Analysis of Cations Viva Voce 7 Detection of Elements in Organic Compounds 1 To detect the presence of nitrogen sulphur and halogens in a given organic compound by Lassaigne's test 2 To detect the presence of nitrogen sulphur and halogens in the given organic compound sample number by Lassaigne's test Viva Voce INVESTIGATORY PROJECTS 1 Checking of Bacterial Contamination in Water 1 To check the bacterial contamination in drinking water by testing sulphide ions Viva Voce 2 Methods of Water Purification 1 To purify water from suspended impurities by using sedimentation 2 To purify water by boiling 3 To purify water by distillation method 4 To purify water by reverse osmosis technique 5 To purify water by GAC method 6 To purify water by bleach treatment 7 To purify water by oxidising agent 8 To purify water by ozone treatment method Viva Voce 3 Water Analysis 1 To test the hardness of different water samples Viva Voce 4 Foaming Capacity of Various Soaps 1 To compare the foaming capacity of different washing soaps 2 To study the effect of addition of sodium carbonate on foaming capacity of washing soap Viva Voce 5 Tea Analysis 1 To study the acidity of different samples of tea leaves tea by using pH paper Viva Voce 6 Analysis of Fruits and Vegetable Juices 1 To analysis the fruit and vegetable juices for the constituent present in them Viva Voce 7 Rate of Evaporation 1 To study the rate of evaporation of different liquids Viva Voce 8 Effect of Acids and Bases on Tensile Strength of Fibres 1 To compare the tensile strength of natural fibres and synthetic fibres 2 To study the effect of

acids and bases on tensile strength of different fibres Viva Voce *Who's who in Finance and Industry*, 2001 *Lab Manual Science Class 09* Neena Sinha, R.Rangarajan, Rajesh Kumar, These Lab Manuals provide complete information on all the experiments listed in the latest CBSE syllabus The various objectives materials required procedures inferences etc have been given in a step by step manner Carefully framed MCQs and short answers type questions given at the end of the experiments help the students prepare for viva voce

**Lab Sparks: Amazing Chemistry - Level-1 for Classes 6-8: A Student-Friendly Practical Manual | You Can See, Feel & Explore! | 35+ Visual Experiments Based on NCERT/CBSE & NEP 2020** KUNDAN KUMAR, 2025-07-14 Discover the Magic of Chemistry with Over 35 Fun Safe Experiments That Will Blow Your Mind Welcome to Lab Sparks Amazing Chemistry Level 1 a student friendly practical manual designed for curious minds in Classes 6 8 Ages 10 14 This book brings chemistry to life through fun safe and visually engaging experiments that you can do at home or in school From balloons that inflate without blowing to liquids that change colors like magic from fizzing reactions to glowing crystals every experiment is crafted to make science an experience not just a subject What's Inside Step by step instructions with emoji based visuals Real life connections see how chemistry works in everyday life Student reflections fun facts after each experiment Safety tips for every activity Aligned with NCERT CBSE syllabus and NEP 2020 guidelines Perfect for project files science fairs and classroom learning Imagine Balloons that inflate using just vinegar and baking soda Liquids that change color like magic with kitchen indicators Making rainbows with a mirror and water Growing crystals at home Fire tornadoes in a jar safely observed This book is more than a lab manual it's a spark that ignites curiosity builds scientific thinking and turns every young learner into a real life chemist Perfect For CBSE State Board Students Class 6 8 Science Teachers Homeschooling Parents School Practical Files Science Exhibition Projects Gift for Young Scientists Who Love to Explore By Kundan Kumar PGT Chemistry Creator of Short Sweet Chemistry YouTube and Founder of Short Sweet Services Because Chemistry Isn't Just Formulas It's Magic in a Bottle Ready to turn ordinary ingredients into extraordinary adventures Let's get started

CBSE Laboratory Manual Mathematics Class 9 Divya Malik, 2022-12-13 Once William Paul Thurston said Mathematics is not about numbers equations computations or algorithms it is about Understanding It is a constant effort of NCERT that it puts on its textbooks to promote clearer understanding of concepts in every student As important as theoretical study is Practical study is also essential to prove theories into realities The freshly updated edition of LABORATORY MANUAL Mathematics for class IX has been designed as a complete package to understand all the relevant mathematical experiments in a simple lucid and interactive manner Strictly based on CBSE guidelines each activity includes theory to give deep insights into each concept formula term definition etc Viva Voce questions Notes Suggested Activities Applications etc are accumulated to make concepts clearer in accordance with the curriculum Along with the Activities all the projects listed in NCERT Lab Manual have also been properly covered This book serves as a step by step guide for conducting experiments in such a way that students will not need to refer to any other book

for explanations of the concepts An all inclusive guidance book for Maths laboratory activities Coverage of each activity in a simple and lucid manner Detailed and Step by Step procedure for each activity Accurate Figures Illustrations and Diagrams in each activity Detailed Demonstration and Calculations with each activity Notes Applications etc with each activity TABLE OF CONTENT Activity 1 34 List of Projects To Develop Heron s formula for area of a triangle story of Chronology of Indian Mathematicians with their contributions Development of formula for the area of a cyclic quadrilateral With rectangle of given perimeter finding the one with a maximum area and with rectangle of given area finding the ones with least perimeter Knowledge and classification of solid figures with respect to surface areas and volumes Generation of Pythagorean triplets Magic squares with cuboid of given surface area finding the one with maximum volume and with cuboid of given volumes finding one with least surface area Mathematical designs and patterns Application of algebra in day to day life      *Lab Sparks: Amazing Physics - Level-1 for Classes 6-8: A Student-Friendly Practical Manual | You Can See, Feel & Explore! | 35+ Visual Experiments Based on NCERT/CBSE & NEP 2020* KUNDAN KUMAR,2025-10-13 Discover the Magic of Physics with Over 35 Fun Safe Experiments That Will Blow Your Mind Welcome to Lab Sparks Amazing Physics Level 1 a student friendly practical manual designed for curious minds in Classes 6 8 Ages 10 14 This book brings physics to life through fun safe and visually engaging experiments that you can do at home or in school From spinning gyroscopes to balloon powered cars from bending light with water to watching sound waves vibrate every experiment is crafted to make science an experience not just a subject What s Inside Step by step instructions with emoji based visuals Real life connections see how physics works in everyday life Student reflections fun facts after each experiment Safety tips for every activity Aligned with NCERT CBSE syllabus and NEP 2020 guidelines Perfect for project files science fairs and classroom learning Imagine Watching a fire tornado dance in a jar Making a rainbow with just a mirror and water Building a hovercraft from a CD and balloon Feeling sound waves with your own hands Spinning motors using just magnets and wires This book is more than a lab manual it s a spark that ignites curiosity builds scientific thinking and turns every young learner into a real life physicist Perfect For CBSE State Board Students Class 6 8 Science Teachers Homeschooling Parents School Practical Files Science Exhibition Projects Gift for Young Scientists Who Love to Explore By Kundan Kumar PGT Chemistry Creator of Short Sweet Chemistry YouTube and Founder of Short Sweet Services Because Physics Isn t Just Formulas It s Energy in Motion Ready to turn ordinary ingredients into extraordinary adventures Let s get started

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