

# Summer Holiday Homework

## Class XII Science

### (2026)

#### Chemistry :

**1) Make a practical notebook and write the following practicals in it.**

1. Prepare a standard solution of Mohr Salt(M/20, 250 ml) and using this solution, find out the molarity and strength of the given  $\text{KMnO}_4$  solution.
2. Prepare a standard solution of oxalic acid(M/20, 250 ml) and using this solution, find out the molarity and strength of the given  $\text{KMnO}_4$  solution.
3. To analyse the given sample of salt for one basic and one acidic radical.

**2) Create an Investigatory project file as per the topic allotted to you**

#### Biology :

##### ***Investigatory Project***

Dear Students,

As part of your Summer Vacation Homework, you are required to complete your Investigatory Project, which is a part of your CBSE Board Practical Assessment.

Project Guidelines

Topic: Assigned to you individually.

**Format: Handwritten only. Use A4 size sheets.**

**Structure:** Must include Cover Page (Topic, Name, Roll No.), Certificate, Acknowledgement, Index, Introduction, Procedure, Observations/Data Collection, Analysis/Discussion, Conclusion, and Bibliography.

**Photos:** Include self-clicked photos of your experiments/working model.

Deadline: Submit the completed project file on the first day after the holidays.

Ensure your project is well-researched and neat.

**Make the PowerPoint presentation of your research for class presentation.**

## **Physics :**

### **(I) Suggested Investigatory Projects (Do any one)**

1. To study various factors on which the internal resistance/EMF of a cell depends.
2. To study the variations in current flowing in a circuit containing an LDR because of a variation in
  - The power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance).
  - The distance of an incandescent lamp (of fixed power) used to 'illuminate' the LDR.
3. To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, an equiconvex lens (made from a glass of known refractive index) and an adjustable object needle.
4. To investigate the relation between the ratio of (i) output and input voltage and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer.
5. To investigate the dependence of the angle of deviation on the angle of incidence using a hollow prism filled one by one, with different transparent fluids.
6. To estimate the charge induced on each one of the two identical Styrofoam (or pith) balls suspended in a vertical plane by making use of Coulomb's law.
7. To study the factor on which the self-inductance of a coil depends by observing the effect of this coil, when put in series with a resistor/(bulb) in a circuit fed up by an A.C. source of adjustable frequency.
8. To study the earth's magnetic field using a compass needle -bar magnet by plotting magnetic field lines and tangent galvanometer.

**(II) Complete the practicals provided in the below pdf with given instructions.**

<https://drive.google.com/file/d/1TqchYjNO7b7uNsskZrAJKtia8oOERArA/view?usp=drivesdk>

## **Maths :**

Do Activities 1 to 7 from the Maths Lab Manual. You may use the Maths Lab Manual or any type of file for the same.

The homework must be submitted positively by the first week of July 2026.

## **English :**

### **Book Review Project :**

(Prepare a Project File with pictures)

- Cover page
- Acknowledgement
- Introduction of the Book
- About the author
- Main Characters
- Theme and message
- Personal Review
- Conclusion

## **Yoga :**

**Homework has to be done in Practical Notebook only**

**Note-** In Practical part paste your pictures only for the related asana, pranayana, mudra and dhyana

### **1.Surya Namashkar [with mantra]**

- a) Introduction of Surya Namaskar
- b) Asanans [Procedure]

### **2.Introduction of Asanans**

[Types of Asanas] 2 each category

### **3.Introduction of Pranayam**

[Types of Pranayam]

- i) Nadi Sodhan
- ii) Bhramri
- iii) Ujjayi

### **4.Introduction of Dhyan**

According to Gherand Samhita. Explain.

### **5.Introduction of Mudra**

Types of mudra any 5

### **6.Introduction of Bandha**

4 Types of Bandhas

### **7.Introduction of Shatkarama**

- i) Kapalbhathi
  - ii) Trataka
- Explanation

### **8.Importance of Asthanga Yoga**

### **9.Contribution of Yog Gurus in Yoga**

### **10.Explanation of Chitt Vikshepa & Chitt Prasadhan**

## **Computer Science :**

**Project File**

**Python Programs :- 15**

**Coding Quality Evaluation:**

60% Logic

20% Documentation

20% Code Quality

**Project Work – 1**

(Based on the concepts learned in Classes XI and XII)

## **Applied Mathematics :**

Welcome to your summer project! This assignment is designed to help you bridge the gap between abstract mathematical concepts and real-world applications. Applied Mathematics is about solving problems that affect industries, nature, and society.

### **Project Instructions :**

**Task:** Select any one topic from the list provided below.

**Format:** The project must be presented in a neatly bound Project File.

**Structure:** Your project should include the following sections:

**Title Page:** Topic name, your name, class/section, and roll number.

Certificate & Acknowledgement.

Index.

**Introduction:** Brief overview of the mathematical concept involved.

**Data Collection/Methodology:** How you gathered your information (surveys, websites, experiments).

**Analysis:** Mathematical calculations, graphs, tables, or logical reasoning.

**Conclusion:** What did you learn? What are the practical implications?

**Bibliography:** Sources used (websites, books, newspapers).

## **List of Suggested Project Topics**

### **Category A: Pure Theory & Logic**

1. Cryptography: The use of prime numbers in coding and decoding messages (RSA encryption).
2. Number Theory: Exploring prime numbers and advanced divisibility rules.
3. Set Theory: The cardinality of a set and the different orders of infinity.
4. Number Systems: Comparing sets of Natural, Rational, and Real numbers.
5. Logical Visualization: Use of Venn diagrams in solving practical, real-world logic problems.
6. Mathematical Logic: Testing the validity of statements and framing complex truth tables.

### **Category B: Finance & Business Math**

1. Financial Logarithms: Using logs for interest, present/future value, and profit/loss with large values.

2. Inventory Management: Analyzing sales data of Kirana shops to determine optimal stock levels for profit maximization.
3. Stock Markets: Tracking and analyzing stock price movements over a specific period.
4. Actuarial Science: How insurance firms use data for risk assessment.
5. Market Volatility: Mathematical patterns involved in predicting stock market crashes.

### **Category C: Data Analysis & Statistics**

1. Linguistic Demographics: Visit the Census of India and depict language data in pictorial forms (Pie charts/Bar graphs).
2. Consumer Behavior: Survey friends on monthly spending (travel, mobile, movies) and draw conclusions.
3. Media Analysis: Comparing newspaper graphical data with your own independent statistical analysis.
4. Urbanization: Analyzing the positive and negative influences of population migration data.
5. Sports Analytics: Analyzing the career graph (batting/bowling averages) of a sports person to find their "Peak Year."
6. Psephology: The mathematics behind predicting election outcomes through exit polls.
7. Vital Statistics: Using data to predict and analyze infant mortality rates.

### **Category D: Environment & Nature**

1. Fibonacci Sequence: Exploring its history and its frequent appearance in nature (flowers, shells, galaxies).
2. Functional Analysis: Investigating graphs of functions and their real-world properties.
3. Meteorological Study: Comparing 30 days of temperature/humidity data with the same period from the previous year.
4. Urban Safety: Correlating vehicle registration data with local pollution levels and accident rates.
5. Agricultural Math: Visiting a village to study the effect of rainfall and temperature on crop yields.
6. Rainfall Prediction: Using 10–15 years of data for a specific week in Delhi to predict this year's rainfall.
7. Monsoon Modeling: Predicting monsoon patterns based on historical climate data.

**Note:** Use clear, labeled diagrams and ensure that all statistical data is accurate. If you are conducting a survey (Topic xi or xx), include a blank copy of your questionnaire in the appendix of your file.

## **Painting :**

Make a Mythological modern art on canvas (24x36) with acrylic colours .

# **Physical education :**

Homework has to be done in Physical education Practical Lab manual file only.

## **First topic**

Football, Hockey, Volleyball, Basketball, Cricket, Kho-Kho and Kabaddi.

1. Anyone game of your choice.
2. History of the game.
3. Rules and regulations of the game.
4. Measurement and Specifications of the game.
5. Fundamental skills of the game.
6. Terminologies of the game.
7. Record (Olympic and World Record).
8. Five famous sports personality of the game, National and international.
9. Major tournaments and trophies related to game. Mention any five names.
10. Paste or draw diagram of your game, famous personalities images and trophies images.

## **Second Topic**

### **SAI Khelo India Fitness Test:**

The Sports Authority of India (SAI) introduced this battery of tests to assess the fitness levels of school students across India. It is divided into two age categories.

#### **1. For Age Group 5-8 Years (Class 1-3):**

Focuses on fundamental movement skills.

- (i) BMI: Body Mass Index (Height and Weight measurement).
- (ii) Flamingo Balance Test: To assess static balance on one leg.
- (iii) Plate Tapping Test: To assess speed and coordination of limb movement.

#### **2. For Age Group 9-18 Years (Class 4-12):**

Focuses on physical fitness components.

- (i) BMI: To check body composition.
- (ii) 50mtr. Dash: To measure explosive speed.
- (iii) 600m Run/Walk: To measure cardiovascular endurance.
- (iv) Sit and Reach: To measure flexibility of the lower back and hamstring.



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**2. □□□□□ 1: □□□□□□□ □□□□□ (Project Work)**

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**Happy Holidays and Happy Research!**