



**IMPERIAL HERITAGE SCHOOL
SECTOR-102, GURUGRAM**

SESSION 2025-26

HOLIDAY HOMEWORK

**GRADE
XII-SCIENCE**

GRADE XII-SCIENCE HOLIDAY HOMEWORK


"Learning doesn't take a break, and neither should our curiosity."

Dear Parents,
Greetings!

At Imperial Heritage School, we believe in nurturing young minds not just during the academic session, but beyond the classroom as well. Holiday homework plays a **pivotal role** in reinforcing classroom learning while encouraging independent exploration. It offers students the chance to engage with subjects at their own pace and reflect creatively on what they've learned.

Why Holiday Homework?

- To maintain continuity in the learning process.
- To apply concepts in real-life scenarios.
- To encourage responsibility, time management, and creativity.
- To foster research, problem-solving, and critical thinking skills.

 **Project-Based Learning** Each task or project has been designed in alignment with the **CBSE curriculum framework and guidelines**, ensuring relevance, engagement, and developmental appropriateness. These projects aim to promote a hands-on, practical approach that bridges theory with real-world applications.

Evaluation Criteria (Rubrics)

Each subject's Holiday Homework will be evaluated as part of the **Internal Assessment**, based on the following parameters:

Content	Presentation	Relevance	Creativity	Originality	On time Submission

Smart Tips for Completing Your Holiday Homework

Be Original

Let your work reflect your own thoughts and creativity. Avoid copying—originality always stands out!

Plan Your Time Wisely

Divide your work across the holiday period to avoid last-minute stress. A little work each day goes a long way!

Read Instructions Carefully

Each subject has specific guidelines. Go through them thoroughly before beginning.

Neatness Matters

Good handwriting leaves a lasting impression. Ensure your work is clean, well-organized, and legible.

Creativity Counts

Add a personal and creative touch to your presentations—be it through design, layout, or illustrations.

✦ Leisure Reading is a Must

Take time to read books of your choice. Reading enhances imagination, vocabulary, and comprehension skills.

✦ Practice Math Daily

Math requires consistency. Set aside time each day to revise concepts and solve problems—practice makes perfect!

✦ Parental Guidance Only

Parents are encouraged to guide, not complete, the assignments. Let students take the lead in their learning. **Outside help will not be accepted and will be given zero.**

✦ Focus on Quality

Aim for meaningful and well-researched content. Quality is more important than quantity.

✦ Remember the Assessment

Holiday Homework is part of **Subject Enrichment Activities** and will be evaluated as per the defined rubrics.

Let Curiosity Lead the Way

An inspirational poem for our learners:

“Learning Beyond the Bell”

*When the school doors close and bells go mute,
Let not your books sit still or roots take root.
For in the pause, a spark may rise,
To chase new thoughts, to question why.*

*A walk through pages, a curious glance,
A project that gives your mind a chance—
To think, to build, to dream and do,
To craft a world from a different view.*

*With pencil, paint, or words you write,
You shape your learning, spark your light.
So take this time and make it shine—
For growth and joy can intertwine. ✨*

Submission Date: 7th July, 2025

Note: No work will be accepted after the said date.

We look forward to seeing the wonderful work our students will create. Let this break be a time to explore, express, and evolve.

Wishing all of you a very joyful, safe and fun packed summer break. Happy Holidays!

Best Regards
Ms. Neelu Sharma
Principal



ENGLISH
CBSE ASL BASED PROJECT

Topic - Earth vs. Humanity: Echoes of a Broken Bond

Integrated Chapter – Journey to the End of the Earth (Vistas)

Objective - Creating a project to critically examine the growing conflict between human development and the natural world, analysing how industrialisation, deforestation, pollution, and urban expansion have led to ecological imbalance. Here's a project outline:



Students will listen to podcasts/ interviews/radio or TV documentaries on the given topic and do a thorough research on the same. Prepare a report including surveys, statistical data, graphs etc, countering or agreeing with the speakers in 800 to 1000 words and submit.

Your project file should contain the following details:

1: Cover page

- Prepare a creative cover page giving relevant details of your project.

2: Index

- Make 3 columns – Serial no, topic, page no.

3: Statement of Purpose

- Write down at least five objectives of the given project.

4: Acknowledgement

- Sample to be provided by the teacher.

5: Certificate of Completion

- Sample to be provided by the teacher.

6: Action Plan

- Sample to be provided by the teacher.

7: Materials Used

- List down all the materials used by you in making of the project.

8: Report

- Report to be written in approx.1000 words.

9: Student Reflections

- Share your views/conclusion on the given topic, and write the learning outcomes

10: Evidence of your report

- Photographs and other pieces of evidence from the research to be pasted.

11: Bibliography

- Pen down the sources from where the information was accessed.

Note:

1. Make a file of your choice with A4-size sheets only.
2. Sheets can be colourful or plain.
3. Presentation should be neat.
4. The project must showcase your creativity.
5. Student findings should be his/her original work.

SUGGESTED READING

‘Silas Marner’ by George Eliot is a long reading text prescribed by CBSE for extensive study. Please find the link below for online reading. Write the summary of the novel in 120-150 words and present it creatively with an illustration. Happy Reading!

https://cbseacademic.nic.in/web_material/doc/novels/1_Silas%20Marner,%20by%20George%20Eliot%20-%20Class%20-%20XII.pdf

**MATHEMATICS****PART A - Write the following Math activities in your Practical file.**

1. Verify that the relation R in the set L of all lines in a plane, defined by $R = \{(l, m) : l \perp m\}$ is symmetric but neither reflexive nor transitive.
2. Demonstrate a function which is not one-one but is onto.
3. Find analytically the limit of a function $f(x)$ at $x = c$ and also to check the continuity of the function at that point.
4. Draw the graph of $\sin^{-1}x$ using the graph of $\sin x$ and demonstrate the concept of mirror reflection (about the line $y = x$).

PART B - Attempt the following project. (USE A4 size sheets).

1. Inverse Trigonometric Functions: Plot the graphs of trigonometric functions and identify the principal value branches to define the inverse trigonometric functions.

Guidelines to be followed for the project:

- i) Cover page
- ii) Title
- iii) Definition and types
- iv) Objectives
- iv) Principal value domain and range and properties of ITF
- v) Represent with graphs and pictures.

PART C

1. Do all examples of Chapters 1, 2, 3 and 4.
2. Do 20 questions daily of chapters 1, 2, 3 and 4 from NCERT Exemplar and other reference books.

CHEMISTRY



A:

PROJECTS WORK

Chemistry investigatory project is a scientific exploration of a specific chemistry topic, often involving designing experiments, analyzing results, and presenting findings. These projects are typically part of a science fair or independent study and can cover various areas of chemistry, including material properties, chemical composition, or synthesis techniques

A few suggested Projects

- a) Study of the presence of oxalate ions in guava fruit at different stages of ripening. (By **Anshuman**)
- b) Study of the quantity of casein present in different samples of milk. (Open to all)
- c) Preparation of soyabean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc. (By **Bhumika**)
- d) Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, concentration, time, etc.) (By **Shourya**)
- e) Study of digestion of starch by salivary amylase and effect of pH and temperature on it. (By **Rhytham**)
- f) Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc. (By **Rishav**)
- g) Extraction of essential oils present in Saunf (aniseed), Ajwain (carom), Illaichi (cardamom). (By **Utsav**)
- h) Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chili powder and pepper. (By **Anangsha**)

Project report should comprise

- First page of the project should display the Name of the topic
- Name, School Name, Submitted by, Submitted to
- Second page - Acknowledgment
- Third page- certificate
- Fourth page- Index of the Project
- Content of Project
- Last page-bibliography

Reference:

Chromeextension://kdpelmjpfafjppnhbloffcjpeomlnpah/https://www.ncert.nic.in/pdf/publication/sciencelaboratorymanuals/classXI/chemistry/kelm208.pdf

B. Art Integrated Activity

Make a report about the comparison of chemical reactions of Haloalkanes, Haloarene, Alcohols, Phenol, Ether, Aldehyde, ketones, Acids on A4 /A3 sheets. Use art integration to illustrate the comparison between them using fine art or digital art.

Note: All figures will have a figure caption.

PHYSICS

Investigatory projects are part of obligatory assignment involving purely experimental procedures. An Investigatory Project uses the scientific method to study and test an idea about how something works. It involves researching a topic, formulating a working theory (or hypothesis) that can be tested, conducting the experiment, and recording and reporting the results. The concept of Investigatory Projects was developed to engage students actively in the scientific process, enhancing their skills and interest in science and technology. Their aim is to instill research skills, promote innovation, and develop scientific character among high school students. It is important that project must provide fairly accurate idea of the topic. While preparing it one must focus on the current research and previous work should be given minimal reference.

The following should be the elements of the Investigatory Project:

1. Cover page



2. Certificate
3. Declaration
4. Acknowledgement
5. Index
6. Aim
7. Introduction
8. Theory and principle
9. Formula
10. Diagram
11. Applications
12. Conclusion
13. Bibliography

Rubrics for assessment are as follows:

Understanding of Concept	Experimental design/ Methodology	Data Collection and Observation	Data analysis and Interpretation	Conclusion and Applications	Originality and Creativity	Timely Submission
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List of Physics Investigatory Project for Gr-XII

S.No.	Name of Student	Project topic
1.	Anangsha Ghosh	1. 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. 2. Working model - Wheatstone bridge. https://youtu.be/77T3tXDVWok
2.	Anshuman Singh	1. To estimate the charge induced on each one of the two identical Styrofoam balls (or pith) balls suspended in a vertical plane by making use of Coulomb's law. 2. Working model to demonstrate the property of capacitor that it allows ac and blocks dc. https://youtu.be/NnsAG3qUYZU
3.	Bhumika	1. 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. 2. Working model to verify Faradays laws of EMI https://youtu.be/9WQmMenvios
4.	Rhytham Kataria	1. 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. 2. Working model – To demonstrate EMI with neodymium magnetic https://youtu.be/hNyxO2_tvYA
5.	Rishav Kumar	1. To study various factors on which the internal resistance/EMF of a cell depends. 2. Working model of galvanometer https://youtu.be/0iSWIeqQatI
6.	Shaurya Bhatia	1. 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. 2. Working model of a step up transformer https://youtu.be/QgTU0_bY0ns
7.	Utsav Saroha	1. To study the earth's magnetic field using a compass needle -bar magnet by plotting magnetic field lines and tangent galvanometer. 2. Working model for the verification of Right Hand Thumb rule https://youtu.be/bMisJP9MiXQ

PHYSICAL EDUCATION

The students are supposed to make a project file as per the details given below.

Instructions:

This project needs to be on one-sided ruled paper and the other side of the plain paper, A4 size. White or coloured sheets.

- These need to be compiled in a single file of at least 35-40 pages with spiral binding.
- The cover page/first page of the practical file should be printed in a design of your choice.
- Keep it colourful but not too flashy - clean and professional looks best.

First page: Cover page of the project:

- Title (like "Physical Education Practical File-048)
- Session (academic year)
- School Name
- Your Name
- Class and Section
- Roll No.(Class XII student will write only the board roll no)

Second page: Index

Third Page: Acknowledgement

Last Page: Conclusion, Bibliography and Certificate

Inside the file Topic:

- Write all fitness test administrations with details, including pictures (SAI Khelo India test/H.P.E. Tests)
- Write the procedure for Asanas, Benefits. And contraindications for any two Asanas for each lifestyle disease with picture or stick diagram (2x5=10, At least 10).
- Write to anyone, the IOA (Indian Olympic Association), sports/games of your choice. Labelled diagram of field and equipment. Also, mention its rules, terminologies and skills.

ARTIFICIAL INTELLIGENCE

1. Practical File:

The following are to be included in the Practical File

- (a) Minimum 6 programs of Python.
- (b) Minimum 3 programs using Orange Data Mining tool.
- (c) Minimum 1 problem to create a Data Story using all steps of Data Storytelling.

Optional Programs- for practical File

- Demonstration of train-test split in Linear Regression using Python.
- Chatbot using Google Gemini API. • Orange Data Mining for Data Analytics.
- Classification problem using TensorFlow playground.
- Regression problem using TensorFlow playground. (snapshots to be attached)

2. Capstone Project:

Capstone Project Guidelines:

- The project should be aligned with any of the SDGs.
- Students will complete their Capstone Project in Class XII and complete the project documentation.
- Video of the Capstone Project should be exactly of 3 minutes duration.
- Note: Python or No code/low code platforms like Orange Data Mining tool can be chosen by the students for developing their Capstone Projects.
- The video will have the following components:
 - a. Problem statement



- b. To which SDG the project is aligned to
- c. AI concept/domains/algorithms used
- d. Working of the project
- e. Conclusion
- f. Acknowledgement to the teacher

Please refer to the Project guidelines of CBSE-IBM AI PROJECT COOKBOOK (Page -2)

https://cbseacademic.nic.in/web_material/Curriculum25/publication/srsec/843_AI_Projects_Cookbook.pdf

***"A little more persistence, a little more effort and what seemed hopeless failure may turn to glorious success."
—Elbert Hubbard***