IMPERIAL HERITAGE SCHOOL
SECTOR-102, GURUGRAM

SESSION 2025-26

HOLIDAY HOMEWORK

GRADE XI-SCIENCE

GRADE XI-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 - "Built by courage. Forged by resilience."

Integrated Chapter - We Are Not Afraid To Die If We Can All Be Together (Hornbill)

Objective - Creating a project on the topic provides an opportunity to inspire and cultivate the qualities of courage and resilience, empowering students to face challenges, overcome adversity, and thrive through change. 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 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 of the research to be pasted.

11: Bibliography
- Pen down the sources from where the information was accessed.

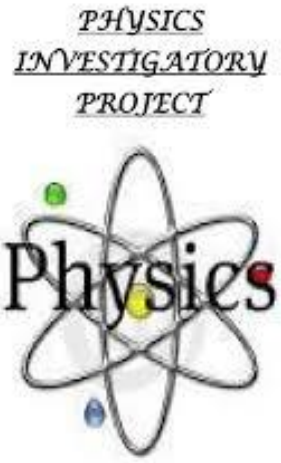
1. Make a file of your choice with A4-size sheets only.
2. Sheets can be colourful or plain.
3. Presentation should be neat.
4. The Project must showcase your creativity.
5. Student findings should be his/her original work.

SUGGESTED READING

'The Invisible Man' by H.G. Wells 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/2_The%20Invisible%20Man,%20by%20H.%20G%20-%20Class%20-%20XII.pdf

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 the project must provide a 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

List of Physics Investigatory Project for Gr-XI

S.No.	Name of Student	Project topic
1.	Devansh Nehra	1. To study the formation of standing waves in strings and organ pipes. 2. Prepare a demonstration on conservation law of angular momentum. https://youtu.be/ZdVYuOrF1yo
2.	Gunjan	1. To study the Projectile motion and find its trajectory Time of flight, Maximum height, Horizontal range. 2. Prepare a demonstration on conservation law of energy. https://youtu.be/6Q9o5oFJ2wk
3.	Jai Chauhan	1. To study Pascal's law and its applications. 2. Prepare a demonstration to prove Pascal's law(Pascal vases experiment)
4.	Mudit	1. To study the law of conservation of angular momentum and its applications. 2. Prepare a demonstration on conservation law of angular momentum. https://youtu.be/ZdVYuOrF1yo
5.	Saranya Chaudhary	1. Study of the Qualitative Ideas of the Blackbody Radiation. 2. Prepare a working model on U-tube manometer. https://youtu.be/dZIRBrLKBGQ
6.	Somya	1.To study the effect of detergent on surface tension of water 2. Prepare a demonstration on surface tension experiment.
7.	S.S. Priyadarshini	1. To study Bernoulli's theorem and its applications. 2. Prepare a demonstration on conservation law of angular momentum. https://youtu.be/ZdVYuOrF1yo
8.	Ranita Kaur	1. To study S.H.M. and calculate expression for its time period and Total Energy. 2. Prepare a demonstration on conservation law of energy. https://youtu.be/6Q9o5oFJ2wk
9.	Rigved	1. To Study the Hooke's Law and three modulus of elasticity. 2. Prepare a working model of water level indicator. https://youtu.be/Fb77w725_D4
10.	Vedansh Butola	1. To study Bernoulli's theorem and its applications. 2. Prepare a working model on the U-tube manometer. https://youtu.be/dZIRBrLKBGQ

CHEMISTRY

A: PROJECT WORK

Chemistry investigatory project can explore various topics, from analyzing the composition of everyday substances to studying chemical reactions and equilibrium. Projects can involve experiments, theoretical investigations, or a combination of both. Scientific investigations involving laboratory testing and collecting information from other sources.

A few suggested Projects

a) Checking the bacterial contamination in drinking water by testing sulphide ion (**By Devansh)**

b) Study of the methods of purification of water (**By Mudit)**

c) Testing the hardness, presence of Iron, Fluoride, Chloride, etc., depending upon the regional variation in drinking water and study of causes of presence of these ions above permissible limit (if any). (**By Vedansh, Rigved)**

d) Investigation of the foaming capacity of different washing soaps and the effect of addition of Sodium carbonate on it (By **Jai Chauhan)**

e) Study the acidity of different samples of tea leaves. (By **Gunjan)**

f) Determination of the rate of evaporation of different liquids (By **Soumya)**

g) Study the effect of acids and bases on the tensile strength of fibers. (By **Priyadarshini)**

h) Study of acidity of fruit and vegetable juices. **(By Ranita)**

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

FUN IN SCIENCE
THINK, MAKE, CREATE

Reference:

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

B. Art and State Integration Activity

Telangana has rich heritage, culture and beautiful locations, providing perfect inspiration for chemists. Write an article about pharmaceutical hub in Hyderabad city of Telangana state and make a comparative study for the scenario of the Chemical Industry in Haryana on an A4 size colored sheet and paste relevant pictures.
Note: All figures will have a figure caption.

MATHS

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

1. Find the number of subsets of a given set and verify that if a set has n number of elements, then the total number of subsets is 2^n.
2. Verify that for two sets A and B, n(A x B) = pq and the total number of relations from A to B is 2^{pq}, where n(A) = p and n(B) = q.
3. Verify the relation between the degree measure and the radian measure of an angle.

PART B - Attempt the following projects as per the allotment. (USE A4 size sheets).

1. Set Theory - Represent following set theoretic operations using Venn Diagram.

$$A \cup B, \quad A \cap B, \quad A', \quad A - B, \quad (A \cap B)', \quad (A \cup B)', \quad A \cap B = \phi, \quad A' \cup B$$

2. Relations and Functions – Draw the graphs of the following functions.
    - Identity Function
    - Modulus Function
    - Greatest Integer Function
    - Signum Function

3. Trigonometric Functions: Plot the graphs of sin x, sin 2x, 2sinx and sin (x/2) , using same coordinate axes.

Guidelines to be followed for the project:
i) Cover page
ii) Title
iii) Definition and types
iv) Objectives
iv) Represent with graphs and pictures.

Project Name	**Name of the student**
1. Set Theory	Daksh, Kanika, Jay
2. Relations and Functions	Yash, Jas, Devansh, Rigved
3. Trigonometric Functions	Vedansh, Ranita, Soumya

PART C

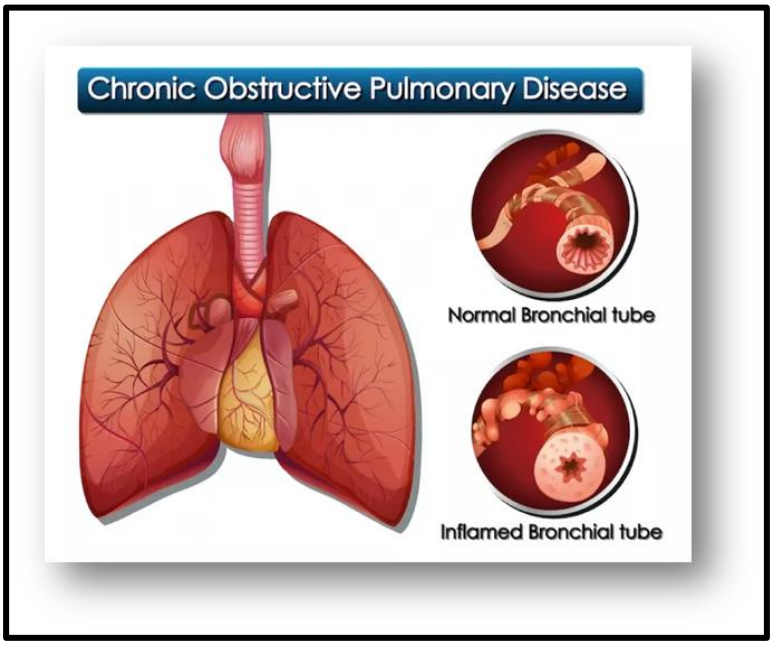
1. Do all examples of Chapters 1, 2 and 3.
2. Do 20 questions daily of chapters 1, 2 & 3 from NCERT Exemplar and other reference books.

BIOLOGY

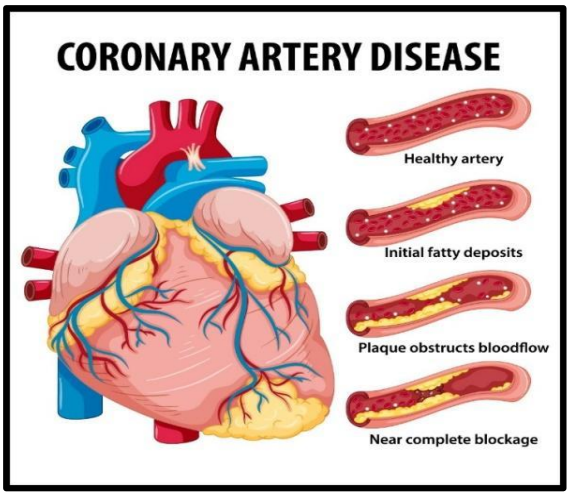
ACTIVITY 1: INVESTIGATOR Y PROJECT

A. ***Chronic Obstructive Pulmonary Disease, COPD:*** *T*o be done by odd roll numbers

In this activity, we wish you to make a detailed *project on 'Chronic Obstructive Pulmonary Disease* (*COPD*)' providing key facts and information on the pointers: causes, general and advanced symptoms, how lungs are affected, airway obstruction, connection with cigarettes smoking and irritants, risk and complications, diagnosis, treatment and management, COPD and diet, link between COPD and cancer.
You also need to throw light on the reported rise in respiratory illnesses (specially COPD) in Delhi-NCR and Telangana mentioning the underlying causes. Compare the data received for the two places and present it using the ICT tools.



B. <u>Coronary Artery Disease (CAD):</u> (to be done by even roll numbers)
In this activity, we wish you to make a detailed *project on* '**Coronary Artery Disease (CAD)**' providing key facts and information on the pointers: <u>symptoms and cause, forms of coronary artery disease (Stable Ischemic Heart Disease and Acute Coronary Syndrome, complications, diagnosis and tests</u>, <u>management (lifestyle changes, diet, exercise) and treatment</u>, <u>prevention</u>, <u>living with</u> CAD.
You also need to throw a light on <u>reported rise CAD in Delhi-NCR and Telangana mentioning the underlying causes. Compare the data received for the two places and present it using the ICT tools.</u>



Note:
- Make a file of your choice with A4 size sheets only (sheets can be colourful or plain).
- Use illustrative pictures (printout or drawing) and data wherever necessary to make the project informative.
- The project should also include the following:
  - Cover page
  - Acknowledgements (Thanks to those who helped you in understanding the concept of the project).
  - Bibliography (all the sources of information where you gathered the information from? examples: books, internet links etc.)

<u>ACTIVITY 2</u>

Make an illustrative chart on:
A. Role of digestive enzymes and gastrointestinal hormones (to be done by odd roll numbers)
B. Protein energy malnutrition, PEM (to be done by even roll numbers)

<u>PSYCHOLOGY</u>

I. Assignment 1: Prepare a project report on any one of the following five suggested topics.

1. Title: Understanding Stress: Exploring Causes, Effects, and Coping Strategies

(survey and interview)

2. Title: Exploring the Stages of Human Development (**descriptive research**,

possibly supported by **case study**, **interview**, or **observational methods**)

3. Title: Exploring Psychological Themes in "**"The Father" (2020)**

Directed by: Florian Zeller (PSYCHOLOGICAL MOVIE ANALYSIS)

4. Memory in a Digital Age: Are We Outsourcing Our Brain to Google? (survey method)

5. Gamified Learning: Do Educational Games Improve Motivation? (Experiment and Observation)

IMPORTANT GUIDELINES FOR WRITING THE PROJECT

- Students should use simple and good English while writing the report.
- The problem and objectives should be specific and clearly stated.
- The report should be in about 30-40 pages minimum.

The following should be included in the Project Report in the same sequence as given below:

1. **Title page**: The Title of the report in block capitals, properly centered.

   Full name of the candidate in capital letters

   Name of the Institute, Year of Submission

2. **Acknowledgment**- to all those who have helped the student complete the project.
3. **Certificate** from the guide.
4. **Table of contents**, chapter wise with the appropriate page numbers.
5. **Actual project content** following the format uploaded on ERP.
6. **Bibliography**-It is important for students to list the Books.

RUBRICS FOR THE PROJECT FILE (05 MARKS)

1. **Content Knowledge**	1 Mark
2. **Research Skills**	1 Mark
3. **Critical Thinking**	1 Mark
4. **Organization and Presentation**	1 Mark
5. Creativity and Originality	1 Mark
TOTAL	**5 Marks**

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 XI student write class roll no only)

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 INTELIGENCE

1) **Practical File Note: The following to be included in the Practical File (You can use MS Word for your documentation).**

• One certification (IBM SkillsBuild (any of the courses listed above) /any other industry certification)
• At least one activity from each unit
• One participation certificate of bootcamp/internship

These are Unit-wise sample activities for Practical file given as below:

(a) Categorize the given applications into the three domains as given on pg. 5 of the Students Handbook.
(b) Identify ten companies currently hiring employees for in specific AI positions.
(c) Note down the technical skills and soft skills listed by any two companies for the specific AI position.
(d) Python programs using operators, data types, control statements (Level 1)
(e) Python programs on NumPy, Pandas, Scikit-learn (Level 2)
(f) Create an empathy map for a given scenario.
(g) Project Abstract Creation Using Design Thinking Framework.
(h) Python programs to demonstrate the use of mean, median, mode, standard deviation and variance.
(i) Python programs to visualise the line graph, bar graph, histogram, scatter graph and pie chart using matplotlib.
(j) Calculation of Pearson's correlation coefficient in MS – Excel.
(k) Demonstration of Linear regression in MS – Excel.
(l) Create a chatbot on ordering ice-creams using any of the following platforms:

a. Google Dialogflow
b. Botsify.com
c. Botpress.com
d. Any other online platform

(m) Summarize your insights and interpretations from the video "Humans need not apply."

(n) Comparative study of AI policies (that involve examining guidelines and principles) established by various organizations and regulatory bodies.

(o) Understanding ethical dilemma using
Moral machine
Survival of the best fit

2) **Capstone Project:**
Create an AI Project Cycle Booklet for an AI model based on any one or more SDGs. Find the solution and make the Problem Statement Template for the same.

Guidelines:

- The Project File should contain proper cover page and Index. (You can use MS Word for the your documentation).
- **Note:** Prepare for the project: Define the problem (SDG aligned); Understand your users; Brainstorm the solution; Design your solution; stages must be completed in the project documentation. Project Documentation (As per the process given in "Project Guidelines", on page 2 of CBSE IBM Projects Cookbook- https://cbseacademic.nic.in/web_material/Curriculum25/publication/srsec/843_AI_Projects_Cookbook.pdf

Assessment Rubrics:

For Project Work

- Topic of the project
- Innovation: Degree of originality and creativity in the proposed AI solution.
- Problem Relevance : Clarity of idea and significance of the problem addressed by the AI solution.

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