

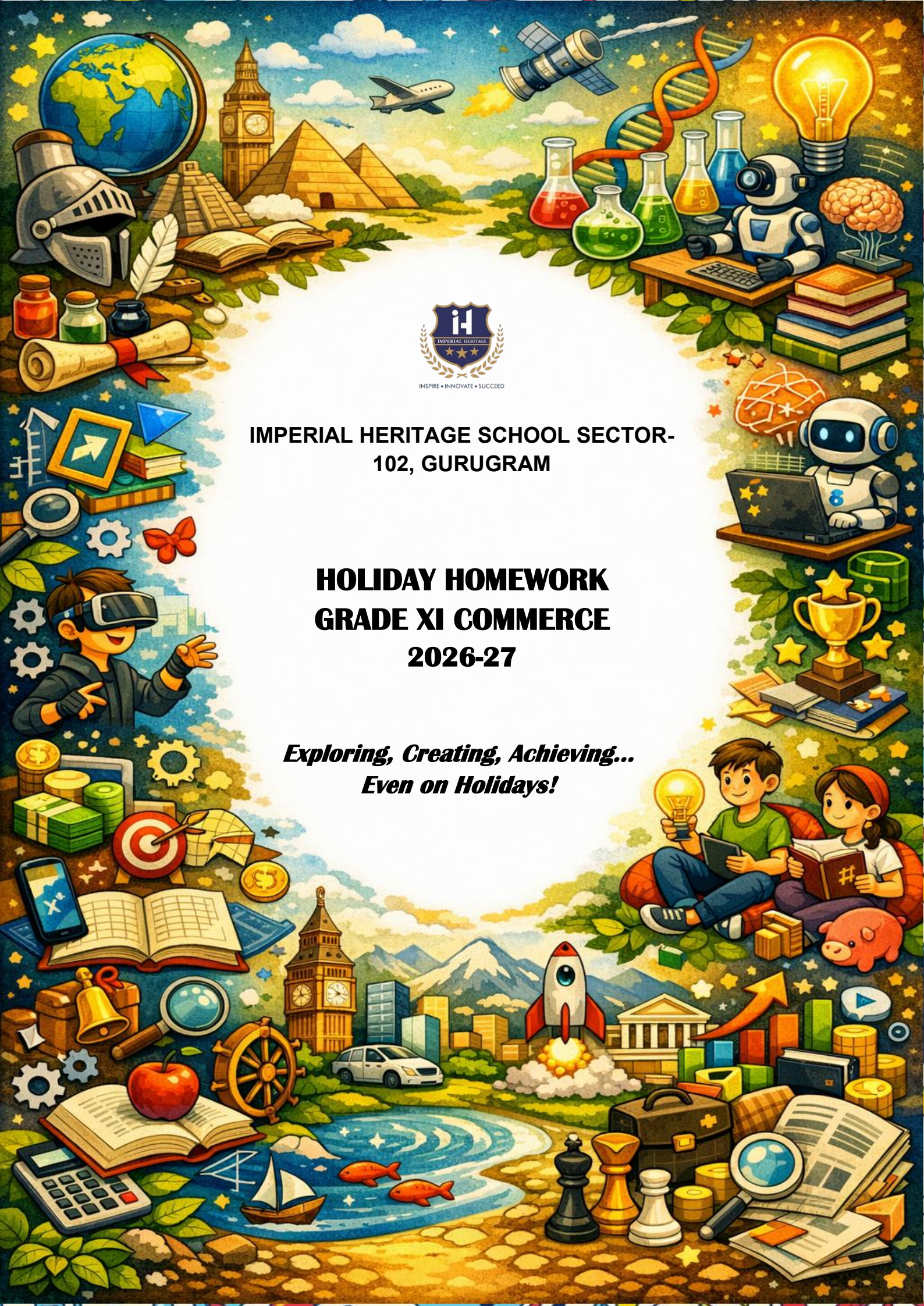


INSPIRE • INNOVATE • SUCCEED

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

**HOLIDAY HOMEWORK
GRADE XI COMMERCE
2026-27**

*Exploring, Creating, Achieving...
Even on Holidays!*



“Curiosity Never Goes on Vacation—and neither does the joy of learning.”

Dear Parents,

Warm greetings!

At Imperial Heritage School, we view learning as a continuous journey—one that extends far beyond the classroom walls. The purpose of holiday homework is not merely to keep students occupied, but to inspire them to explore, reflect, and grow independently. It is an opportunity for children to connect classroom knowledge with the world around them, while discovering their own unique ways of learning.

The Purpose Behind Holiday Homework

Holiday assignments are thoughtfully designed to:

- Sustain the rhythm of learning even during the break
- Encourage application of concepts in everyday life
- Develop responsibility, discipline, and effective time management
- Strengthen analytical thinking, creativity, and problem-solving abilities

Learning Through Projects

Each assignment is aligned with CBSE guidelines and focuses on experiential, project-based learning. These tasks are curated to ensure meaningful engagement, allowing students to bridge theory with practical understanding in a creative and enjoyable manner.

Assessment Parameters

Holiday homework will form a part of Internal Assessment and will be evaluated on:

- Content
- Presentation
- Relevance
- Creativity
- Originality
- Timely Submission

Kindly Note the Project/Practical written work assigned will be evaluated as CBSE project.

Guidelines for Students

- **Be Authentic:** Your work should reflect your own ideas and efforts.
- **Plan Ahead:** Break tasks into small parts and complete them gradually.
- **Follow Instructions:** Read each guideline carefully before beginning.
- **Maintain Neatness:** Clear, organized work always creates a strong impression.
- **Think Creatively:** Present your work in an innovative and engaging manner.
- **Read Daily:** Cultivate the habit of reading to expand your imagination and language skills.
- **Practice Mathematics:** Consistency is key—regular practice leads to mastery.
- **Seek Guidance, Not Substitution:** Parents may guide, but students must complete the work independently.
- **Prioritize Quality:** Focus on depth, clarity, and meaningful content.

A Fresh Thought for Our Learners

“Where Questions Bloom”

When holidays stretch like open skies,
Let wonder wake and questions rise.
Not all learning lives in books,
It hides in paths and curious looks.
In silent thoughts, in things you make,
In every risk you choose to take,
In colours mixed or stories spun,
In problems solved just for the fun.

A restless mind, a seeking heart,
That’s where true journeys always start.
So learn, explore in your own way—
Let curiosity lead each day.

Submission Date: 6th July, 2026

We eagerly await the thoughtful and creative work our students will present. May this vacation be a time of joyful discovery, meaningful experiences, and personal growth. Wishing you all a safe, refreshing, and enriching summer break!

Warm regards,

**Ms. Neelu Sharma
Principal**

ENGLISH

I. CBSE ASL BASED PROJECT

Topic - Generation Gap: Clash or Connection?

Integrated Chapter - The Portrait of a Lady (Hornbill)

Objective - Creating a project on intergenerational conflict provides an opportunity to explore the dynamics, causes, and consequences of conflicts between different age groups within families, communities, and society. Here's a project outline:



Students will listen to podcasts/ interviews/radio or TV documentaries on the given topic and do 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 of 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. The presentation should be neat.
4. The project must showcase your creativity.
5. Student findings should be his/her original work.

II. HOLIDAY HOMEWORK WORKSHEET

Complete the Holiday HW Worksheet uploaded on ERP. Q/As to be done in the notebook.

III. 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



ACCOUNTANCY

Objectives:

1. To familiarize students with new and emerging areas in the preparation and presentation of financial statements.
2. To acquaint students with basic accounting concepts and accounting standards.
3. To develop the skills of designing a need based accounting database.
4. To appreciate the role of ICT in business operations.
5. To develop an understanding about recording of business transactions and preparation of Financial statements.
6. To enable students with accounting for Not-for-Profit organizations, accounting for Partnership Firms and company accounts.



Guidelines for Presentation of Project Report

1. The total length of the project will be a minimum 30 pages.
2. The project should be handwritten.
3. The project should be presented in a neat folder.
4. The project report should be developed in the following sequence:
 - The cover page should include the title of the Project, student information, school and year.
 - List of contents.
 - Acknowledgements and preface (acknowledging the institution, the places visited and the persons who have helped).
 - Introduction. Topic with suitable heading.
 - Planning and activities done during the project, if any.
 - Observations and findings from the Balance sheet of a particular organisation.
 - Conclusions (summarized suggestions or findings, future scope of study).
 - Photographs (if any).
 - Appendix

Needs to include:

1. Acknowledgement
2. Certificate
3. Index
3. Content
5. Conclusion
6. Bibliography

Students can choose any one topic for their project work from the following.

1. Collection of source documents, preparation of vouchers, recording of transactions with the help of vouchers.
2. Preparation of Bank Reconciliation Statement with the given cash book and the pass book with twenty to twenty-five transactions.
3. Comprehensive project of any sole proprietorship business. This may state with journal entries and prepare their ledger, preparation of Trial balance. Trading and Profit and Loss Account and Balance Sheet.

Expenses, incomes and profit (loss), assets and liabilities are to be depicted using pie chart / bar diagram. This may include simple GST related transactions.

The students can select a business from the given list.

1. A coffee shop
2. A cake shop
3. An ice cream parlour
4. A small restaurant
5. A sweet shop
6. A flower shop
7. A grocery shop
8. A stationery shop
9. A shoe shop

After selection, student(s) visit a shop in the locality, and would be able to see the things as they need to invest in furniture, decor, lights, machines, computers etc.

A suggested list of different items is given below.

1. Rent
2. Wages and Salary
3. Advance rent [approximately three months]
4. Newspaper and magazines
5. Electricity deposit
6. Petty expenses
7. Electricity bill
8. Tea expenses
9. Electricity fitting
10. Packaging expenses
11. Water bill
12. Transport
13. Water connection security deposit
14. Delivery cycle or a vehicle purchased
15. Water fittings
16. Registration
17. Telephone bill
18. Insurance
19. Telephone security deposit
20. Auditors fee
21. Telephone instrument
22. Repairs & Maintenance

23. Furniture
24. Depreciation
25. Computers
26. Air conditioners
27. Internet connection
28. Fans and lights
29. Stationery
30. Interior decorations
31. Advertisements
32. Refrigerators
33. Glow sign
34. Purchase and sales
35. Rates and Taxes

In the next step the students are expected to prepare the trial balance and the financial statements.

Marking Scheme:

1.	Initiative, cooperativeness and participation	2 Marks
2.	Creativity in presentation	2 Marks
3.	Content, observation and research work	4 Marks
4.	Analysis of situations	4 Marks
5.	Viva	8 Marks
6.	Total	20 Marks

BUSINESS STUDIES

The objective of introducing this project among the students is to give a first hand experience to them regarding the different types of business units operating in their surroundings, to observe their features and activities and relate them to the theoretical knowledge given in their text books.



Guidelines for Presentation of Project Report

1. The total length of the project will be 25 to 30 pages.
2. The project should be handwritten.
3. The project should be presented in a neat folder.
4. The project report should be developed in the following sequence:
 - Cover page should include the title of the Project, student information, school and year.
 - List of contents.
 - Acknowledgement and preface (acknowledging the institution, the places visited and the persons who have helped).
 - Introduction. Topic with suitable heading.
 - Planning and activities done during the project, if any.
 - Observations and findings of the visit.
 - Conclusions (summarized suggestions or findings, future scope of study).
 - Photographs (if any).
 - Conclusion
 - Bibliography

Suggestive List of Projects (Pick up any one of the following and research on the same.)

I. Project One: Field Visit

The students should select a place of field visit from the following: – (Add more as per local area availability.)

1. Visit to a Handicraft unit.
2. Visit to an Industry.
3. Visit to a Wholesale market (vegetables, fruits, flowers, grains, garments, etc.)
4. Visit to a Departmental store.
5. Visit to a Mall.

1. Visit to a Handicraft Unit

The purpose of visiting a Handicraft unit is to understand nature and scope of its business, stakeholders involved and other aspects as outlined below

- a) The raw material and the processes used in the business: People /parties/firms from which they obtain their raw material.
- b) The market, the buyers, the middlemen, and the areas covered.
- c) The countries to which exports are made.
- d) Mode of payment to workers, suppliers etc.
- e) Working conditions.

- f) Modernization of the process over a period of time.
- g) Facilities, security and training for the staff and workers.
- h) Subsidies available/ availed.
- i) Any other aspect that the teachers deem fit.

2. Visit to an Industry.

The students are required to observe the following:

- a) Nature of the business organisation.
- b) Determinants for location of business unit.
- c) Form of business enterprise: Sole Proprietorship, Partnership, Undivided Hindu Family, Joint Stock Company (a Multinational Company).
- d) Different stages of production/process
- e) Auxiliaries involved in the process.
- f) Workers employed, method of wage payment, training programmes and facilities available.
- g) Social responsibilities discharged towards workers, investors, society, environment and government.
- h) Levels of management.
- i) Code of conduct for employers and employees.
- j) Capital structure employed- borrowed v/s owned.
- k) Quality control, recycling of defective goods.
- l) Subsidies available/availed. m) Safety Measures employed.
- m) Working conditions for labour in observation of Labour Laws.
- n) Storage of raw material and finished goods.
- o) Transport management for employees, raw material and finished goods.
- p) Functioning of various departments and coordination among them (Production, Human Resource, Finance and Marketing)
- q) Waste Management.
- r) Any other observation.

3. Visit to a wholesale market: vegetables/fruits/flowers/grains/garments etc.

The students are required to observe the following:

- a) Sources of merchandise.
- b) Local market practices.
- c) Any linked up businesses like transporters, packagers, money lenders, agents, etc.
- d) Nature of the goods dealt in.
- e) Types of buyers and sellers.
- f) Mode of the goods dispersed, minimum quantity sold, types of packaging employed.
- g) Factors determining the price fluctuations.
- h) Seasonal factors (if any) affecting the business.
- i) Weekly/ monthly non-working days.
- j) Strikes, if any- causes thereof.
- k) Mode of payments.
- l) Wastage and disposal of dead stock.
- m) Nature of price fluctuations, reason thereof.
- n) Warehousing facilities available\availed.
- o) Any other aspect.

3. Visit to a Departmental store

The students are required to observe the following:

- a) Different departments and their layout.
- b) Nature of products offered for sale.
- c) Display of fresh arrivals.
- d) Promotional campaigns.
- e) Spaces and advertisements.
- f) Assistance by Sales Personnel.
- g) Billing counter at store – Cash, Credit Card/ Debit Card, swipe facility. Added attractions and facilities at the counter.
- h) Additional facilities offered to customers
- i) Any other relevant aspect.

4. Visit to a Mall.

The students are required to observe the following:

- a) Number of floors, shops occupied and unoccupied.
- b) Nature of shops, their ownership status
- c) Nature of goods dealt in: local brands, international brands,
- d) Service business shops- Spas, gym, saloons etc.
- e) Rented spaces, owned spaces,
- f) Different types of promotional schemes.
- g) Most visited shops.
- h) Special attractions of the Mall- Food court, Gaming zone or Cinema etc.
- i) Innovative facilities.
- j) Parking facilities.

II. Project Two: Case Study on a Product

- a) Take a product having seasonal growth and regular demand with which students can relate.

For example,

- Apples from Himachal Pradesh, Kashmir.
- Oranges from Nagpur,
- Mangoes from Maharashtra/U.P./Bihar/Andhra Pradesh etc.
- Strawberries from Panchgani,
- Aloe vera from Rajasthan,
- Walnuts/almonds from Kashmir,
- Jackfruit from South,
- Guavas from Allahabad,
- Pineapples from North East India,
- Tea from Assam,
- Orchids from Sikkim and Meghalaya,
- Pottery of Manipur,
- Fishes from coastal areas.

Students may develop a Case Study on the following lines:

- (i) Research for change in price of the product. For example, apples in Himachal Pradesh during plucking and non plucking season.
- (ii) Effect on prices in the absence of an effective transport system.

- (iii) Effect on prices in the absence of suitable warehouse facilities.
- (iv) Duties performed by the warehouses.
- (v) Demand and supply situation of the product during harvesting season, prices near the place of origin and away.

Students may be motivated to find out the importance of producing and selling these products and their processed items along with the roles of Transport, Warehousing, Advertising, Banking, Insurance, Packaging, Wholesale selling, Retailing, Co-operative farming, Co-operative marketing etc.

III. Project Three: Aids to Trade

Taking any one AID TO TRADE, for example Insurance and gathering information on following aspects

1. History of Insurance Lloyd's contribution.
2. Development of regulatory Mechanism.
3. Insurance Companies in India
4. Principles of Insurance.
5. Types of Insurance. Importance of insurance to the businessmen.
6. Benefits of crop, orchards, animal and poultry insurance to the farmers.
7. Terminologies used (premium, face value, market value, maturity value, surrender value) and their meanings.
8. Anecdotes and interesting cases of insurance. Reference of films depicting people committing fraudulent acts with insurance companies.
8. Careers in Insurance.

IV. Project Four: Import /Export Procedure

Any one from the following

1. Import /Export procedure

The students should identify a product of their city/country which is imported /exported. They are required to find the details of the actual import/export procedure. They may take help from the Chambers of Commerce, Banker, existing Importers/Exporters, etc.

They should find details of the procedure and link it with their Text knowledge.

The specimens of documents collected should be pasted in the Project file with a brief description of each. They may also visit railway godowns/dockyards/ transport agencies and may collect pictures of the same.

V. Project Five: A visit to any State Emporium (other than your school state).

- * The purpose of this project is that it leads to Development of deeper understanding of the diversity of products in the states like Assam, Tripura, Nagaland, Mizoram, Manipur, Meghalaya, Sikkim, Arunachal Pradesh, Jammu and Kashmir, Kerala, Chhatisgarh, Telangana, Andhra Pradesh and other states of the country.
- * Sensitization and orientation of students about other states, their trade, business and commerce,
- * Understanding the cultural and socio-economic aspects of the state by the students
- * Developing the understanding of role of folk art, artisanship and craftsmanship of the state in its growth and economic development

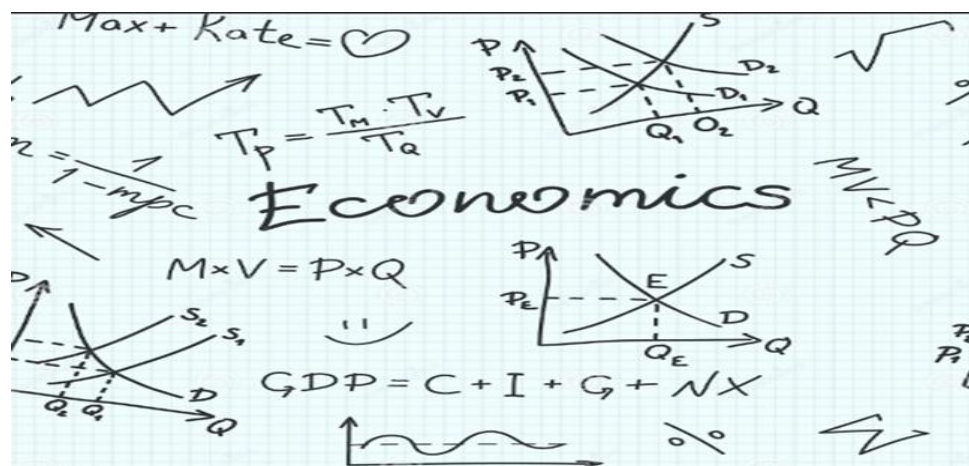
- * Understanding the role of gifts of nature and natural produce in the development of trade, business and commerce
- * Understanding the role of vocational skills and abilities on the livelihood of artisans/ craftsman
- * Understanding of entrepreneurial skills and abilities of the artisans/craftsman
- * Understanding of the unemployment problem of the state and role of art and craft of the state in generating employment opportunities
- * Value aspect - Sense of gratitude - by appreciating the contributions made by others in the betterment of our lives
- * Appreciating the dignity of work
- * Sensitivity towards social, cultural, ethnical and religious differences Benefits of social harmony and peace
- * Understanding and appreciating the unity in diversity in India
- * Appreciating differences in race, skin colour, languages, religion, habits, festivals, clothing coexistence

ASSESSMENT

The marks will be allocated on the following heads.

1.	Initiative, cooperativeness and participation	2 Marks
2.	Creativity in presentation	2 Marks
3.	Content, observation and research work	4 Marks
4.	Analysis of situations	4 Marks
5.	Viva	8 Marks
6.	Total	20 Marks

ECONOMICS



Project (Option One) : What's Going Around Us

The purpose of this project is to –

- Enable the student to understand the scope and repercussions of various Economic events and happenings taking place around the country and the world.

Examples and suggestive topics:

- “Flames of Inflation: How India Managed Rising LPG Prices without Burning Household Demand”
- “Glitter in Crisis: Rising Gold & Silver Prices and Their Ripple Effects on India’s Economy”
- “From Play to Pay: How the Rising Gaming Profession is Shaping India’s Economy”
- “India-EU Free Trade Agreement: A Boon or Threat to Indian Industries? (Called “mother of all deals”)
- “Middle East Conflict (2026) and Its Impact on Indian Economy”
- “Oil Price Shock 2026: Is India Too Dependent on Imported Energy?”
- “From Kirana to Quick Commerce: How 10-Minute Delivery is Changing India’s Economy”
- “Climate Change and Economy: Are Extreme Weather Events Slowing India’s Growth?”
- Provide an opportunity to the learner to develop economic reasoning and acquire analytical skills to observe and understand economic events.
- Make students aware about the different economic developments taking place in the country and across the world.
- Develop the understanding that there can be more than one view on any economic issues and to develop the skill to argue logically with reasoning.
- Compare the efficacy of economic policies and their respective implementations in real world situations and analyse the impact of Economic Policies on the lives of common people.
- Provide an opportunity to the learner to explore various economic issues both from his/her day to day life and also issues which are of broader perspective.

Scope of the project:

Student may work upon the following lines:

- Introduction
- Details of the topic
- Pros and Cons of the economic event/happening
- Major criticism related to the topic (if any)
- Students' own views/perception/ opinion and learning from the work
- Conducting survey and presenting the same in form of diagrams
- Any other valid idea as per the perceived notion of the student who is actually working and presenting the Project-Work.

II. Project (Option Two): Analyse any concept from the syllabus.

The purpose of this project is to –

- Develop interest of the students in the concepts of Economic theory and application of the concept to real life situations.
- Provide opportunity to the learners to develop economic reasoning vis-a-vis the given concept from the syllabus.
- Enable the students to understand abstract ideas, exercise the power of thinking and to develop his/her own perception
- To develop the understanding that there can be more than one view on any economic issue and to develop the skill to argue logically with reasoning
- Compare the efficacy of economic policies in real world situations
- To expose the student to the rigour of the discipline of economics in a systematic way
- Impact of Economic Theory/ Principles and concepts on the lives of common people

Scope of the project:

Following essentials are required to be fulfilled in the project. Explanation of the concept:

- Meaning and Definition
- Application of the concept
- Diagrammatic Explanation (if any)
- Numerical Explanation related to the concept etc. (if any)
- Students' own views/perception/ opinion and learning from the topic.

• Effect on PPC due to various government policies	• Invisible Hand (Adam Smith)
• Opportunity Cost as an Economic Tool (taking real life situations)	• Effect of Price Change on a Substitute Good (taking prices from real life visiting local market)
• Effect on Equilibrium Prices in Local Market (taking real life situation or recent news)	• Effect of Price Change on a Complementary Good (taking prices from real life visiting local market)
• Solar Energy, a Cost-Effective Comparison with Conventional Energy Sources	• Bumper Production- Boon or Bane for the Farmer
• Any other newspaper article and its evaluation on basis of economic principles	• Any other topic

Marking Scheme :

Marks are suggested to be given as –

S. No.	Heading	Marks Allotted
1.	Relevance of the topic	3
2.	Knowledge Content/Research Work	6
3.	Presentation Technique	3
4.	Viva-voce	8
	Total	20 Marks

III. Do the revision sheet assignment uploaded on ERP

PHYSICAL EDUCATION

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

Instructions:

- This project needs to be done on one side of ruled paper and the other side of the plain paper provided in your Lab Manual (physical education practical file).
- The Lab Manual has to be covered with a brown paper cover sheet.
- Inside the Lab Manual, you may use coloured pens, but keep it colourful without making it too flashy, a clean and professional look is best.

Cover Page of the Project:

On white paper, it has to be pasted outside on the brown paper cover and should be printed neatly and clearly as mentioned below:-

- **Title** (e.g., "Physical Education Practical File-048")
- **Session:** 2026-27 (Academic Year)
- **School Name:**
- **Your Name:**
- **Class and Section:**
- **Roll No:** (For XI Class, Class roll number only)

Second Page: Index

- You have to complete the Index according to the details given in your Lab Manual. No page should be left blank in Index.

Inside the File – Topics:

- Write all fitness test administrations with details, including pasted coloured pictures (SAI Khelo India Test / H.P.E. Tests) and Brockport Physical Fitness Test also.
- Write the procedure for Asanas, their benefits, and contraindications for any two Asanas for each lifestyle disease (obesity, diabetes, asthma, hypertension, and back pain), with coloured pictures ($2 \times 5 = 10$; at least 10 yoga postures).
- Write about any one of the following: the IOA (Indian Olympic Association) sport/game of your choice. Include a labelled diagram of the field and equipment, along with rules, terminologies, and skills associated with the game. And paste the coloured photograph of related sports equipments.

NOTE: - No black & White photos allowed in physical education Lab manual (practical file).

COMPUTER SCIENCE

Activity 1: “Why Python is Popular?” (To be done on A4 Sheet)

Create a Poster on:

Include:

- Features of Python
- Applications of Python
- Python logo and slogans
- Real-life uses of Python

Activity 2: Python Treasure Hunt (To be done on an A3 Sheet)

Instructions: Students must solve the following clues and write answers.

- I store text inside quotes. Who am I?
- I am used to taking input from the user.
- I repeat tasks multiple times.
- I help in decision-making in Python.
- I join two strings together.
- I check conditions, True or False.
- I help to access characters in a string.
- I stop the loop immediately.
- I convert text into uppercase.
- I am used to displaying output on the screen.

Activity 3: Mini Coding Challenge (to be done in Practical File)

Create Small Python Programs for:

- Student Grade Calculator
- Password Checker
- ATM PIN Verification
- Number Guessing Game
- Word Counter
- Multiplication Quiz

Activity 4: Python Programs

(Practical File work to be done in the online Google Word File and share that file directly on kanchan.chowdhary@imperialheritageschool.com)

Input & output (Screenshot) both to be included in the file.

1. Input a welcome message and display it.
2. Input two numbers and display the larger / smaller number.
3. Input three numbers and display the largest / smallest number.
4. Generate the following patterns using nested loops:

Pattern-1	Pattern-2	Pattern-3
*	12345	A
**	1234	AB
***	123	ABC
****	12	ABCD
*****	1	ABCDE

5. Write a program to input the value of x and n and print the sum of the following series:
 - $1 + x + x^2 + x^3 + x^4 + \dots x^n$
 - $1 - x + x^2 - x^3 + x^4 - \dots x^n$
 - $x + \frac{x^2}{2} + \frac{x^3}{3} + \frac{x^4}{4} + \dots \frac{x^n}{n}$
 - $x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \dots \frac{x^n}{n!}$
6. Determine whether a number is a perfect number, an Armstrong number or a palindrome.
7. Input a number and check if the number is a prime or composite number.
8. Display the terms of a Fibonacci series.
9. Compute the greatest common divisor and the least common multiple of two integers.
10. Count and display the number of vowels, consonants, uppercase, and lowercase characters in string.
11. Input a string and determine whether it is a palindrome or not; convert the case of characters in string.
12. Find the largest/smallest number in a list/tuple
13. Input a list of numbers and swap elements at even locations with the elements at the odd locations.
14. Input a list/tuple of elements, search for a given element in the list/tuple.
15. Create a dictionary with the roll number, name, and marks of n students in a class, and display the names of students who have marks above 75.
16. Consider the string `str1 = "Green Revolution"`. Write a program to implement the following:
 - a) To display the last four characters.
 - b) To display the starting index for the substring 'vo'.
 - c) To check whether the string contains 'vol' or not.
 - d) To repeat the string 3 times.
17. Write a program that reads a string and then prints a string that capitalizes every other letter in the string. Like 'school' will become 'sChOoL'.
18. Count the number of vowels in the string mentioned: "Darjeeling Tea has a strong flavour".
19. Write a program that reads the email ID of a person in the form of a string and ensures that it belongs to the domain @abc-academy.ac.in.
20. Write a program to accept 10 numbers and find the maximum value entered by the user. It should display the maximum number after accepting 10 values.

Activity 5: Do the revision assignment in the notebook uploaded on ERP.

MATHEMATICS

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

1. To 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. To verify that for two sets A and B , $n(A \times B) = pq$ and the total number of relations from A to B is 2^{pq} , where
 $n(A) = p$ and $n(B) = q$.
3. To distinguish between a Relation and a Function.
4. To verify the relation between the degree measure and the radian measure of an angle.
5. To verify that the graph of a given inequality of the form $ax + by + c < 0$, $a, b > 0$, $c < 0$ say $5x + 4y - 40 < 0$, represents only one of the two half planes.

PART B - Attempt the following projects as per the allotment.

Topic – Relations and Functions (For odd roll numbers)

Title - “Understanding Real Functions Through Graphs and Real-Life Applications”

In mathematics, a function is a relation that assigns each element of a set (domain) to exactly one element of another set (range). Functions are widely used in science, engineering, and everyday problem-solving to describe relationships between quantities.

The objective of this task is to study different types of real functions, understand their behaviour, draw their graphs, and explore their importance in real-life situations.

Instructions: You are required to study and analyze the following real functions:

- Identity Function
- Modulus Function
- Greatest Integer Function
- Signum Function

For each function, you must:

1. Define each function clearly.
2. Write its domain and range.
3. Draw neat graphs.
4. Write at least 2 real-life applications for each function.
5. Conclusion.

You can add on 4–5 lines mentioning “Which function did you find most interesting and why?” (Optional)

Topic: Trigonometric Functions (For even roll numbers)

Title: “Exploring Trigonometric Functions Through Graphs and Real-Life Applications”

Trigonometric functions relate angles to ratios of sides of a triangle. The main functions are sine, cosine, and tangent. These functions have a wide range of application in sound waves and vibrations, Alternating current (AC electricity), Height and distance calculations, and Circular motion (wheels, planets).

In this task, students will explore trigonometric functions and understand how changes in equations affect their graphs. Students will also relate these functions to real-life applications such as sound waves, electricity, and motion.

Instructions: You are required to study and analyze the following trigonometric functions:

- $\sin \omega x$
- $\sin 2\omega x$
- $2\sin \omega x$
- $\sin \omega(x/2)$

For each function, you must:

1. Identify its domain and range
2. Determine its amplitude and period
3. Show graphical representation.
4. Compare it with the basic sine function on the basis of amplitude, period, graph shape.
5. Explain at least one real-life application.

Assessment Criteria:

- Accuracy of concepts
- Clarity of explanations
- Presentation and neatness.
- Connection to real-life applications

PART C (To be done in Practice Notebook)

1. Do all examples of Chapters 1, 2, 3, 4 and 5.
2. Do 5 questions daily of chapters 1, 2, 3, 4 and 5 from NCERT Exemplar and other reference books.
3. Do the revision assignment uploaded on ERP.

ARTIFICIAL INTELLIGENCE

Activity 1: AI Around Us (to be done on A3 Sheet)

Identify any 10 AI-enabled applications used in daily life.

Example:

- Voice Assistants
- Face Unlock
- Recommendation Systems
- Chatbots

Write:

- Name of application
- How AI is used
- Benefits

Activity 2: Creative Work (to be done on A3 Sheet)

Create a mind map on: “Applications of NLP.”

Examples:

- Google Translate
- Voice Assistants
- AI Chatbots
- Spam Detection
- Text Summarization

Activity 3: IBM Certification (<https://skillsbuild.org/students>)

Click the link given above and choose any 4 Courses related to your curriculum. Get the certification and add it to your Practical file.

Activity 4: Python Programs

(Practical File work to be done in the online Google Word File and share that file directly on kanchan.chowdhary@imperialheritageschool.com)

Input & output (Screenshot) both to be included in the file.

1. Write a program to add multiple rows in one go to a CSV file.
2. Write a program to demonstrate 2D array
3. Write a programme to create a numpy array by taking values from the user through np.empty().
4. Write a programme to create a data frame using dictionaries of lists or arrays
5. Write a program to select a specific element from the data frame.
6. Program to add the column at specific position in the data frame.
7. Program To fill the missing values in the data frame.
8. Program to print the first 10 values of the separated data into X&Y in the iris data set.
9. Write a program to split the data of the iris data set into training set and testing set
10. Write a program to evaluate the matrices of the iris data set.
11. Create a simple Python code to display the parts of speech.
12. Create a simple chatbot using Python.
13. Create a simple Python code to demonstrate the use of the nested if statement
14. Create a Python code of list and include all the slicing categories in it.
15. Create a programme to write data to a CSV file row by row.

Activity 5: Do the revision assignment in the notebook uploaded on ERP.