New Era Progressive School

Korba

Holiday Home Work

Class – XII

ENGLISH

In pair prepare a PPT on any one of the topics. Include the following slides-

1. Title slide (school logo, topic , name ,class, submitted to)
2. Acknowledgement
3. Certificate
4. Introduction (with reference to the chapter)
5. Content(2-3 slides)
6. Reflection (learning outcomes)
7. Bibliography

Topics

- **The Third Level (Jack Finney):** Escapism, the fear of modern life, and the boundary between reality and imagination.
- **The Tiger King (Kalki):** Satire on the conceit of those in power and the misuse of authority.
- **On the Face of It (Susan Hill):** Friendship, overcoming prejudice, and self-acceptance, focusing on the character development of Derry and Mr. Lamb.
- **Journey to the End of the Earth (TishaniDoshi):** Climate change awareness, the fragile ecosystem of Antarctica, and the future of humanity.
- **The Enemy (Pearl S. Buck):** The conflict between patriotism and human duty/kindness.
- **Indigo – Fight against injustice**
- **Lost Spring – Child labour – a curse for society.**

Note-

1. Submit the printout in a file.
2. Share the link of PPT in your file and to me as well.
3. Prepare yourselves thoroughly for the presentation.(Both)
4. Submit the HHW on 16/6/26.

PHYSICS

"Prepare a physics working model on a chosen topic, submit a 8–10-page report file, and present it after reopening."

Guidelines for Working Models

Objective

The project aims to:

- Reinforce classroom learning through practical application.
- Develop creativity, problem-solving, and research skills.
- Encourage independent and collaborative work.

Relevance: The model should be based on topics given in syllabus.

Feasibility: Ensure it can be built with easily available materials.

Originality: Innovate rather than replicate standard textbook models.

Documentation: Require a short report explaining the principle, construction steps, and applications etc

Assignment Format

1. **Model Construction:** Build and test the working model.
2. **Report (3–4 pages):**
    - Aim and Theory/principle.
    - Materials used.
    - Construction steps.
    - Observations and applications.
3. **Presentation:** Students present their model after reopening, explaining the physics behind it.

Submission

- Submit the written report on the **first week after reopening**.
- Models will be displayed and demonstrated in class.

CHEMISTRY

Investigatory Project

S. No.	Topic of the investigatory project	Allotment to the Roll Number
1	Study of content of casein in different milk sample	1, 7, 13, 19, 25, 31, 37
2	Study of amount of oxalate ions in guava at different stages of ripening	2, 8, 14, 20, 26, 32, 38
3	Comparing the neutralizing ability of various commercial antacid tablets.	3, 9, 15, 21, 27, 33, 39
4	Adulterants in food: Chili powder, turmeric and ghee	4, 10, 16, 22, 28, 34, 40
5	Testing of water samples for hardness p^H and TDS	5, 11, 17, 23, 29, 35, 41
6	Setting up a simple chemical cell	6, 12, 18, 24, 30, 36, 42

BIOLOGY

A) Prepare an investigatory project on any one of the topics given below

1. **Thalassemia & Sickle Cell Anaemia**: Investigating genetic blood disorders and their inheritance patterns.
2. **Drug and Alcohol Addiction**: A study of its impact on the adolescent brain and the physiological effects of substance abuse.
3. **Gene Therapy**: Exploring how genetic material is used to treat or prevent disease.
4. **Single Cell Protein (SCP)**: Investigating microbial biomass as a sustainable protein source for global food security
5. **Cancer and its Treatment**: Detailed case studies on various types of cancer and modern therapeutic methods

B) To prepare a pedigree chart and analyse it.

- **Blood groups** (ABO system)
- **Color blindness** (X-linked recessive)
- **Haemophilia**

MATHEMATICS CORE

Instructions for Students

- Students must prepare an Art Integrated PowerPoint Presentation (PPT) on ONE of the five topics below.
- This is an individual project; there is no grouping. All students are free to choose any topic.

- Presentation duration: 5 minutes per student. Do not read directly from slides; explain concepts in your own words.
- The PPT must be saved in a pen drive and submitted on the first day after the summer vacation.

Project Topics (Choose ANY ONE)

1. Industrial Relations: The Korba Power Grid

Theme: Relations and Functions

- (A) Introduction: Meaning of Relations and definitions of Reflexive, Symmetric, and Transitive properties.
- (B) Concept Explanation: Detailed algebraic proof of an Equivalence Relation.
- (C) Real-Life Application: Map Korba's Power Units (NTPC/BALCO) to their Megawatt (MW) capacity. Analyze if this mapping is Injective, Surjective, or Many-to-One.
- (D) Art Integration: Create a flowchart or model of the Korba power distribution network as a functional mapping.
- (E) Activity: Use a Venn diagram to illustrate the relation between different power plants and their respective ownership entities.

2. The Geometry of Victory: T20 Series 2025

Theme: Inverse Trigonometric Functions

- (A) Introduction: Meaning of Inverse Trigonometric Functions (ITF) and Principal Value Branches.
- (B) Concept Explanation: Explanation of restricted domains for $\sin^{-1}x, \cos^{-1}x$, and $\tan^{-1}x$.
- (C) Real-Life Application: Using data from India's T20 victories in 2025, calculate the angle of elevation for a boundary shot given its maximum height and horizontal range using $\tan^{-1}(h/d)$.
- (D) Art Integration: Sketch the parabolic trajectory of a cricket ball and identify the inverse trigonometric angles at different points.
- (E) Activity: Case study on specific match performances (e.g., Hardik Pandya or Arshdeep Singh) to model ball trajectories using trigonometry.

3. Squad Dynamics: India's T20 Dominance

Theme: Relations and Functions

- (A) Introduction: Concept of Domain, Codomain, and Range in Functions.
- (B) Concept Explanation: Step-by-step differentiation between Many-to-One and One-to-One functions.
- (C) Real-Life Application: Create a mapping where the Domain is the Indian Playing XI and the Range is the wickets taken by bowlers like Varun Chakaravarthy.
- (D) Art Integration: Draw a colorful arrow diagram for this mapping, using team colors.

- (E) Activity: Determine if the relation "Player X and Player Y played in the same T20I match in 2025" is an Equivalence Relation.

4. Architectural Trigonometry: Korba Skyline

Theme: Inverse Trigonometric Functions

- (A) Introduction: Basic concepts of inverse functions and their properties.
- (B) Concept Explanation: Important ITF identities and their algebraic proofs (e.g., $\sin^{-1}x + \cos^{-1}x = \pi/2$).
- (C) Real-Life Application: Find the angle subtended by the chimneys of Hasdeo Thermal Power Station from a specific point on Darri Road.
- (D) Art Integration: Create a geometric drawing of the Darri Dam spillway and identify the inverse trig curves in its design.
- (E) Activity: Graph $y = \cos^{-1}x$ and compare it with the actual slope of a local landmark in Korba.

5. Logistics & Connectivity: The NEPS TRANSPORT System

Theme: Relations and Functions

- (A) Introduction: Meaning of Bijective functions and Invertibility.
- (B) Concept Explanation: Solving problems involving the composition of functions and inverse mappings.
- (C) Real-Life Application: Map the students to their unique NEPS TRANSPORT System route numbers. Check for Bijectivity.
- (D) Art Integration: Design a map of Korba city showing transport routes as functional paths between nodes.
- (E) Activity: Analyze student enrollment data (Student to Roll No) and explain why it must be a One-to-One function.

Evaluation Criteria

- Content Accuracy: Mathematical precision in formulas and calculations.
- Creativity: Originality in Art Integration and local Korba /Cricket context.
- Presentation Skills: Confidence and clarity during the 5 -minute session.
- Neatness: Organization of slides and documentation.
  "Success is a function of hard work and mathematical precision."

ADDITIONAL MATHEMATICS

(Art-Integrated Research Work)

General Instructions

- Answer all questions in detail and in your own words.
- Prepare PowerPoint presentation.
- Minimum 10–15 slides.
- Students are required to present their PPT in the classroom.
- Each student will get 3–5 minutes for presentation after summer vacation.
- Students must explain their slides clearly.

Research Task 1

(a) Define the following terms with examples: Relation, Function, Domain, Range, Types of Functions.
Note: Create a colorful mind map showing all these concepts.

(b) Explain different types of functions on the basis of one-one, onto, many-one, into.

Note: Represent each type using mapping diagrams with colors.

(c) Draw graphs of any two functions and explain their nature.

Note: Use graph paper and highlight important points with colors.

(d) Explain real-life applications of functions.

Note: Show applications using illustrations and pictures.

(e) Write a short note: Why functions are important in Mathematics and daily life.

Note: Present it as a creative poster with a slogan.

OR

Research Task 2

(a) Invertible functions with examples and explain whether trigonometric functions are invertible or not.

(b) Write principal value branches and other branches of inverse trigonometric functions: $\sin^{-1}x$, $\cos^{-1}x$, $\tan^{-1}x$ with graphs.

Note: Represent ranges using color-coded number lines.

(c) Solve and verify any two problems based on inverse trigonometric functions to find the principal value.

(d) Write applications of inverse trigonometric functions in real life.

Note: Explain using diagram/sketch (like height & distance problems).

(e) Write a short note: Why inverse trigonometric functions are important in Mathematics and daily life.

Note: Present it as a creative poster with a slogan.

Submission: Students bring their holiday homework in pendrive after summer vacation.

ACCOUNTANCY

PART A. PROJECT

Observe the transaction of a retail store for a month and prepare a Financial Statement for the period.

PART B. Numerical Questions

Section A: Case-Based Question

Q1. Amit and Sumit started a firm on 1.4.2025 with capitals of ₹5,00,000 and ₹3,00,000 respectively. Partnership Deed provides:

i) Interest on Capital @ 10% p.a.

ii) Amit to get salary ₹5,000 p.m.

iii) Interest on Drawings: Amit ₹3,000, Sumit ₹2,000

iv) Profit sharing ratio 3:2

Profit for the year ended 31.3.2026 was ₹2,80,000 before above adjustments.

Questions:

a) Calculate Interest on Capital for both partners.

b) Will Amit get full salary if profit is insufficient? State the rule.

c) Prepare Profit & Loss Appropriation A/c.

Q2. X, Y and Z are partners without any Partnership Deed. X gave a loan of ₹1,00,000 to the firm. Profit for the year was ₹90,000. X claims:

i) Interest on Loan @ 10% p.a.

ii) Interest on Capital @ 6% p.a.

iii) Salary ₹3,000 p.m. for managing firm

Questions:

a) Which claims of X are valid? Give reason with provision of Indian Partnership Act, 1932.

b) How will ₹90,000 profit be distributed?

Section B: Practical Questions

Q3. A and B are partners with capitals ₹4,00,000 and ₹3,00,000. Deed provides interest on capital @ 8% p.a. and profit sharing 1:1. Profit for the year = ₹40,000.

Pass necessary journal entries and show distribution. What value is highlighted if interest on capital is not given due to loss?

Q4. Prepare Partners' Capital Accounts under Fluctuating and Fixed Capital Method from the following:

On 1.4.2025: P = ₹6,00,000, Q = ₹4,00,000.

During year: Additional Capital P = ₹1,00,000 on 1.10.25; Drawings P = ₹60,000, Q = ₹40,000.

Interest on Capital 5%, Interest on Drawings 6% p.a. Profit = ₹2,50,000, 2:1.

Section C Multiple Choice Questions

Q5. Choose the correct option:

1. In absence of Partnership Deed, partners share profits:

   a) In capital ratio b) Equally c) As per seniority d) Not shared

2. Interest on partner's loan is provided @:

   a) 6% p.a. b) 8% p.a. c) 10% p.a. d) No interest

3. Partner's Current A/c is prepared when capitals are:

   a) Fluctuating b) Fixed c) Either d) Cannot say

4. Which item is not shown in P&L Appropriation A/c:

   a) Interest on Drawings b) Rent to partner c) Partner's Salary d) Interest on Capital

5. If date of drawings is not given, interest is charged for:

   a) 12 months b) 6 months c) 6.5 months d) 3 months

6. Maximum number of partners in banking business:

   a) 50 b) 20 c) 10 d) 100

Section D: Theory & HOTS

Q6. Differentiate between 'Fixed' and 'Fluctuating' Capital Accounts. Give 3 points.

Q7. "Partnership is a result of agreement, not status." Explain with one weight. 3. Revise all provisions of Indian Partnership Act, 1932 applicable in absence of deed.

BUSINESS STUDIES (054)

Topic- "Fayol in 1916 vs You in 2026"_

✓Based on:

Ch-1 Nature & Significance of Management + Ch-2 Principles of Management

✓Task: Visit ANY 1: Cafeteria / Salon / Grocery Shop / Stationery Shop near home

Question.

What to observe & present on Project File.

1. Shop Profile :- Shop name, owner name, one photo you click, one hand-drawn logo(if any)

2. Principle Check:- Pick any 5 of Fayol's 14. Principles

3. Make table- Principle :- Seen or Not

4. Missing Principle?

a) Which principle is NOT followed?

b) What problem happens?

c) Consequence of non-application?

5. How management helps this small shop –

✓**PART B**

"If I Were Fayol in 2026" – Create New Principle

✓Task: After your visit, think:

"Fayol made principles 100 years ago.

1. What new problem did you see in 2026 that needs a new principle?"

2. Principle Name:

Give it a catchy name.

3. Why Needed:

Two lines on current problem you saw.

MACRO ECONOMICS

SECTION – A

1. Prepare a case based assignment on any of the following topics

   i. Inflation and Indian economic development

2. Role of RBI in control of the inflation in the economy

3. Effective role of startups to tackle the problem of unemployment in India

SECTION – B

State and explain about the aggregate of national income.

PHYSICAL EDUCATION

Topic: Physical Fitness

- **General Instructions:**
- **Complete the homework on A4 sheets (stick file).**
- **Maintain neat handwriting and add colourful drawings or paste pictures wherever required.**

Section A

Q1. What do you understand by physical fitness? Give one real-life example.

Q2. Define balanced diet and explain its importance in daily life.

Section B
(Application-Based)

Q3. Prepare a one-week fitness plan for a student of your age.

Include:

- **Warm-up**
- **Exercise**
- **Cool-down**
- **Diet suggestion**

Section C
(Case Study / Real-Life Based)

Q4. Read the situation and answer:

1. **A student spends most of the time on mobile and does not participate in physical activities. He/ She feels tired and unhealthy.**

Answer the following:

a. **What problems can arise from this lifestyle?**
b. **Suggest any three ways to improve his/ her fitness.**

Section D
(Project Work)

Q5. Design a poster on the importance of fitness and healthy lifestyle.

COMPUTER SCIENCE(083)

1) Explain the following terms with examples:
   a. Machine Learning
   b. Neural Networks
   c. Data Science
2) A student wants to calculate marks and grade. Write a program using a function to:
   - Input marks
   - Return grade based on:
     - 90+ → A
     - 75–89 → B
     - 50–74 → C
     - Below 50 → Fail
3) Write a program using a function to display Fibonacci series.
   Formula : $F_n = F_{n-1} + F_{n-2}$

KATHAK

- You are required to prepare a Kathak-based semi-classical dance of 3 minutes or less.

ENTREPRENEURSHIP(066)

Business plan

Topic: _Prepare a detailed Business Plan for a startup of your choice.