ITL PUBLIC SCHOOL

Summer Engagement Programme

Session 2026-27

Class IX

Theme: Computation Thinking and AI

Topic : Smart Energy Solutions: Consumption to Conservation

SUMMER ENGAGEMENT PROGRAMME
Class IX

Interdisciplinary Project: Computational Thinking & AI

Dear Students
In today's rapidly evolving digital world, Computational Thinking (CT) and Artificial Intelligence (AI) have become essential skills for learners. They help students think critically, solve problems creatively, and design innovative solutions for real-world challenges.
Computational Thinking is a logical and systematic way of solving problems using concepts commonly used in computer science — even without using a computer. It goes beyond coding and encourages students to connect subjects like Science, Social Science, and English to create meaningful, data-driven solutions.

The four core pillars of Computational Thinking are:
1**. Decomposition** – Breaking a complex problem into smaller, manageable parts.
2. **Pattern Recognition** – Identifying repeated trends or logical sequences.
3. **Abstraction** – Focusing only on important information while ignoring unnecessary details.
4. **Algorithmic Thinking** – Creating step-by-step solutions to solve problems effectively.

Summer vacations provide a wonderful opportunity to explore new ideas and learn beyond textbooks. Through this project, you will act as a young innovator, study a real-life problem, and suggest smart and sustainable solutions using creativity, observation, and critical thinking.

General Instructions:

1. Each subject to be done on different coloured A4 size sheets as per the colour and subject mentioned below:
Maths- light Blue
Science- light green
SST- light yellow
English- light pink
Hindi- mauve/ light purple
AI- white

2. All the subject sheets to be punched together and inserted into **one project file**.

3. The project file to **covered with a golden / silver handmade sheet** and labelled properly as mentioned below:

SUBJECT ENRICHMENT ACTIVITY

Interdisciplinary Project

Theme: Computational Thinking and AI

Topic :
Smart Energy Solutions: Consumption to Conservation

Name.....
Class.....

4. **English Book Trailer** to be brought in a pen drive

5. **Separate Project files** to be made for Physical Education and Art Education
The **cover page of Physical Education** project file to be labelled as mentioned below:

PROJECT FILE
Physical Education &Well-being

Name .....
Class.....

The **cover page of Art Education** project file to be labelled as mentioned below:

PROJECT FILE
ART EDUCATION

VISUAL ARTS **or** MUSIC **or** DANCE & MOVEMENTS
(Any One)

Name....
Class....

6. Each student should submit 3 project files to **their class teacher** on **1st July 2026**:
● Interdisciplinary project file
● Physical Education &Well-being project file
● Art Education project file

SUBJECT INTEGRATION

Topic: Smart Energy Solutions: Consumption to Conservation

Problem Statement:

The increasing and inefficient consumption of energy in homes, schools, and public spaces is leading to resource depletion and environmental concerns, creating a need for smart, sustainable, and AI-enabled energy conservation solutions.

MATHS

Instructions: Use pen, calculator, and real data from home/street. Show all calculations. Hand-draw graphs in boxes. Max 4 pages.

PART A: DECOMPOSITION – Break Down Your Energy Use
Formula: kWh/day = (Watts × Hours used) ÷ 1000

S. NO.	APPLIANCE	POWER RATING (WATTS)	CALCULATION: kWh/day = (Watts × Hours used) ÷ 1000	KWH/DAY
1	Ceiling Fan			
2	LED Bulb			
3	Refrigerator			
4	Television			
5	Other			

TOTAL kWh/Day = _____

PART B: PATTERN RECOGNITION – Track 7-Day Consumption
Task: Note meter reading at the same time daily for 7 days.

DAY	DATE	TOTAL CONSUMPTION (in KWh)
Day 1		
Day 2		
Day 3		
Day 4		
Day 5		
Day 6		
Day 7		

Statistics:
Mean = ____ kWh Median = ___ kWh Mode = _____ kWh Range = _____ kWh

Bar Graph: Plot Daily kWh vs Day Number on a graph sheet

Pattern Observed: _____

PART C: ABSTRACTION – Create Your Energy Health Score
Formula:
$100 - \left(\frac{KWh}{No.of\ people} \times 25\right)$
No. of family members = ___
Mean Daily kWh from Part B = ___
Score = 100 - (____ ÷ ____ × 10) = ___ /100

Which 2 details did you ignore and why?
1. Ignored: _____ Reason: _____
2. Ignored: _____ Reason: _____

PART D: ALGORITHM – Write Your Savings Plan
Pick 1 appliance from Part A: _____

My Energy-Saving Algorithm:
1. INPUT: Check _____
2. IF _____ > _* THEN *_____
3. ELSE IF Daily kWh > _* THEN send alert: "*_____"
4. OUTPUT: Estimated Weekly Savings = _* kWh × ₹8 = ₹*_

Show calculation for savings: _____

PART E: REFLECTION + AI LINK
1. AI Task: Ask any AI: "Give 3 ways smart meters use maths to save power."
   Write 1 way that matches your algorithm: _____
2. Complete: "Maths helped me think like a computer because _____"

SCIENCE

Activity:

1. Create a Flowchart/Mind Map showing:

Energy Source → Usage → Wastage → Environmental Impact → Conservation Method
(Step 1 of Computational Thinking**: Decomposition** – breaking the problem into smaller connected parts.)

2. Prepare a comparative table on:

LED bulbs vs ordinary bulbs, Solar panels vs fossil fuels, Smart sensors vs manual switching
(Step 2 of Computational Thinking**: Pattern Recognition**– identifying efficient and inefficient energy practices.)

3. Write 5 important principles for smart and sustainable energy conservation.

(Step 3 of Computational Thinking: **Abstraction** – focusing only on the most essential ideas.)

4. Create a step-by-step action plan titled "How to Save Energy Smartly."

(Step 4 of Computational Thinking: **Algorithmic Thinking** – arranging solutions in a logical sequence of steps.)

Submission Guidelines

* Use coloured A4 size sheets.
* Include diagrams, tables, and illustrations wherever required.
* Maintain neatness, creativity, and originality.
* Use simple, scientific, and meaningful language.
* Avoid direct copying from internet sources.

Assessment Criteria:

Understanding of Concept – 5 Marks
Application of Computational Thinking – 5 Marks
Creativity & Presentation – 5 Marks
Scientific Analysis – 5 Marks
Originality & Awareness – 5 Marks
Total: 25 Marks

SOCIAL SCIENCE

Activity:

1. Conduct a short survey of 10 households/society members on energy usage habits and present the findings through a bar graph or pie chart.

(Step 1 of Computational Thinking**: Decomposition** – collecting and organising information into categories.)

2. Identify patterns in the survey such as excessive electricity use, transport habits, or awareness levels, government policies, influence of class on energy consumption (Example: Consumption of AC will be higher in the upper classes of society). Write 4–5 observations.

(Step 2 of Computational Thinking: **Pattern Recognition** – identifying common trends and behaviours.)

3. Suggest the 5 most practical solutions for responsible energy use in society.

(Step 3 of Computational Thinking: **Abstraction** – selecting the most effective and relevant solutions.)

4. Design an awareness campaign for responsible energy conservation by creating a campaign title, logo, and 3 campaign ideas for the community/school.

(Step 4 of Computational Thinking: **Algorithmic Thinking** – organising ideas in a structured and purposeful manner.)

Submission Guidelines:
* Use coloured A4 size sheets.
* Present survey findings neatly using graphs/charts.
* Maintain originality, creativity, and clarity.
* Use relevant facts and practical examples.
* Avoid direct copying from internet sources.

Assessment Criteria:
Understanding of Concept – 5 Marks
Application of Computational Thinking – 5 Marks
Creativity & Presentation – 5 Marks
Social Awareness & Analysis – 5 Marks
Originality & Practical Solutions – 5 Marks
Total: 25 Marks

ENGLISH

Activity Title: "Voices of the Future: An Energy Awareness Podcast/Interview"

Activity Overview:

Students will create a podcast/interview script based on the growing problem of excessive energy consumption and the need for smart and sustainable solutions.

Students may choose any family member or friend and imagine them as:

an AI Energy Assistant/a Scientist /a Future Citizen/a School Energy Auditor.

●Begin the podcast/interview by discussing different areas where energy is wasted in daily life such as homes, schools, transport, gadgets, and public places.

(Step 1 of Computational Thinking : **Decomposition** – breaking the larger issue into smaller areas of concern.)

●Identify repeated habits and behaviours that lead to excessive energy consumption such as unnecessary charging, lights left switched on, excessive screen time, etc.

(Step 2 of Computational Thinking : **Pattern Recognition** – identifying repeated patterns of energy misuse.)

●Focus the discussion only on the most important causes, effects, and practical conservation methods while avoiding unrelated or unnecessary details.

(Step 3 of Computational Thinking : **Abstraction** – selecting only relevant and meaningful information.)

●Conclude the podcast/interview by suggesting smart and sustainable solutions such as AI-enabled monitoring systems, smart devices, energy-saving habits, and awareness campaigns.

Conclude it with a short poetic form such as a:

1. Haiku – a three-line Japanese poem with a 5–7–5 syllable pattern,
2. Limerick – a humorous five-line poem with a rhythmic rhyme scheme,
3. Couplet – two rhyming lines expressing a complete thought,
4. Acrostic Poem – a poem where the first letters of each line form a word/message,
5. Free Verse – poetry without strict rhyme or rhythm patterns,
6. Slogan Verse – short rhythmic lines carrying a strong message or awareness appeal.

(Step 4 of Computational Thinking : **Algorithmic Thinking** – presenting solutions in a logical and organised sequence.)

Sample Beginning of the Podcast/Interview:

Host:"Good morning everyone! Welcome to Energy Talks 2040. Today we are discussing how smart technology and responsible habits can help save energy and protect our planet."

Guest (AI Energy Assistant/Scientist/Future Citizen/School Energy Auditor):"Thank you for inviting me. Energy conservation has become one of the biggest global concerns, and AI-powered solutions can play a major role in reducing unnecessary energy consumption."

Host:"That sounds interesting! Can you share some common habits that lead to energy wastage in our daily lives?"

Students may creatively continue and complete this conversation/podcast or create an entirely original interview/podcast of their own.

Submission Guidelines

• Students will write the podcast/interview script neatly on **coloured ruled A4 size sheets.**

• The script should be approximately **350–450 words in length.**

• Students will also record and submit the podcast/interview in audio or video format in a labelled pen drive.

• The duration of the recording should be approximately 2–3 minutes.

• Students are encouraged to use:

creative titles, effective voice modulation, clear pronunciation, expressive dialogue delivery, suitable background music/sound effects (optional), engaging conversation styles, and confident body language and eye contact (for video recordings).

• Students must highlight:

1. Idioms in yellow,
2. Proverbs (if used) in red,
3. New/advanced vocabulary words in green,
4. Facts/statistics/scientific terms in blue.

5. • **<u>Assessment Rubrics</u>**

Criteria	Excellent (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
Content & Ideas	Highly creative, insightful and strongly connected to the theme	Relevant and meaningful ideas	Some relevant ideas but limited depth	Ideas unclear or unrelated
Language Usage	Excellent vocabulary, grammar, idioms and expressions used effectively	Good vocabulary and mostly correct grammar	Simple language with few errors	Frequent grammatical errors and weak vocabulary

Presentation Skills	Outstanding voice modulation, confidence and expression	Good clarity and presentation	Average delivery with limited expression	Unclear or monotonous presentation
Creativity & Originality	Exceptionally innovative and engaging	Some creative elements included	Limited creativity	Minimal effort shown
Technical Quality	Clear audio/video with excellent organization	Minor technical issues	Average recording quality	Poor recording quality
Poetic Conclusion	Poem is meaningful, impactful and well-structured	Appropriate poetic ending	Basic poetic attempt	Missing or ineffective conclusion
Visual Presentation of Script	Neat, colourful, well-organized and correctly highlighted	Mostly neat and organized	Somewhat untidy	Poor presentation and incomplete highlighting

• Students should maintain originality, creativity, and relevance to the theme "*Voices of the Future: An Energy Awareness Podcast."*

Fill up the Reflection Form given below and attach it with the Podcast Script

Reflection Form

Voices of the Future: An Energy Awareness Podcast

Reflection Questions

1. **What inspired you to make a podcast?**

2. **What message did you want your listeners to understand about energy awareness?**

3. **Which part of the activity did you enjoy the most and why?**

4. **What challenges did you face while writing or recording the podcast?**

5. **Mention any new vocabulary words, idioms, or expressions you learned through this activity.**

6. **How did this activity improve your:**
    a. **communication skills?**

    b. **creativity?**

    c. **confidence?**

7. If given another opportunity, what would you improve in your podcast/interview?

8. One important lesson I learned from this activity is:

Self-Assessment

(✓ Tick the option that best describes your work)

Statement	Yes	Somewhat	No
I contributed original ideas			
I used expressive language and vocabulary			
I practiced my speaking before recording			
I maintained clarity and confidence while speaking			
I understood the importance of energy awareness			

BOOK TRAILER

INSTRUCTIONS :

1. Students will select **ANY ONE** book from any category given in the reading list according to their interest and choice.
2. They will create a short and engaging **BOOK TRAILER** based on the selected book.
3. The trailer should highlight the main theme, characters, setting, and conflict of the story without revealing the ending.
4. Students may use images, video clips, background music, narration, dialogues, or text effects to make the trailer creative and impactful.
5. The final book trailer should be 2–3 minutes long and presented in the class.

REFERENCES

https://www.youtube.com/playlist?list=PLGTBqhN4e5ISvK09nZqWKBu-7IvQGJDY0

READING LIST			
Category	**Book**	**Author**	**About the Book**
Realistic / General Fiction	The Kite Runner	Khaled Hosseini	A boy's friendship is tested by betrayal in war-torn Afghanistan. Explores guilt, redemption, and loyalty.
	The Book Thief	Markus Zusak	A girl in Nazi Germany finds solace in books. Highlights the power of words and human resilience.
	Namesake	Jhumpa Lahiri	A young man struggles with identity between cultures. Explores belonging and self-discovery.
	Journey by Night	Norah Burke	A boy survives a dangerous jungle journey. Reflects courage and endurance.
	The Brass Gong	Qazi Abdul Sattar	A historical narrative rooted in Indian culture. Explores honour and emotional conflict.
	Old Man at the Bridge	Ernest Hemingway	An old man waits helplessly during war. Reflects loss and the cost of conflict.
	Last Orders	Graham Swift	Friends gather to fulfil a dying wish. Explores memory and relationships.
	In a Free State	V.S. Naipaul	Stories of displacement and identity. Highlights alienation and postcolonial struggles.
	The English Patient	Michael Ondaatje	Lives intersect during WWII. Explores love, memory, and war's impact.
	The Night Watchman	Louise Erdrich	A community resists injustice. Highlights identity and survival.
	The Overstory	Richard Powers	Lives connect through trees and nature. Emphasises environmental awareness.
	Salvation of a Saint	Keigo Higashino	A murder mystery with twists. Explores logic and human psychology.
	Things Fall Apart	Chinua Achebe	A tribal leader faces colonial change. Explores culture and identity.
	The Colour Purple	Alice Walker	A woman rises above oppression. Highlights empowerment and resilience.
	Gone	Margaret	A woman survives the Civil War's upheaval. Explores

	with the Wind	Mitchell	strength and change.
Fantasy & Adventure	The Lord of the Rings	J.R.R. Tolkien	A quest to destroy a powerful ring. Explores courage and friendship.
	Troy	Adele Geras	A humanised retelling of the Trojan War. Blends myth, love, and war.
	Gulliver's Travels	Jonathan Swift	Travels to strange lands reveal satire. Critiques human nature and society.
	Through the Looking Glass	Lewis Carroll	A surreal mirror-world adventure. Celebrates imagination and logic.
	The Invisible Man	H.G. Wells	A scientist turns invisible but loses control. Explores power and isolation.

गतिविधि . ऊर्जा बचत बोर्ड गेम

Board game design छात्र एक सांप सीढ़ी या लूडो जैसा गेम बनाएंगे, लेकिन ऊर्जा के ट्विस्ट के साथ

Decomposition खेल के नियम, बोर्ड का डिज़ाइन टोकन और चांस काईस chance cards बनाना

पैटर्न पहचान pattern recognition

वर्तमान की ऊर्जा समस्याओं जैसे ग्लोबल वार्मिंग को देखते हुए भविष्य के रुझानों को पहचानना जैसे ,हर घर का अपना छोटा फ्यूजन रिएक्टर होना।

उन अच्छी और बुरी आदतों को पहचानना जो गेम में आगे बढ़ाएंगी या पीछे ले जाएंगी, उदाहरण के लिए, लाइट खुली छोड़ी दो कदम पीछे सोलर पैनल लगाया 5 कदम आगे

Abstraction खेल को सरल बनाने के लिए केवल दस 10 मुख्य ऊर्जा आदतों पर ध्यान केंद्रित करना

Algorithm खेल खेलने की नियमावली rule book तैयार करना।

आवश्यक निर्देश

दिए गए कार्य को चार्ट पर करें |

ARTIFICIAL INTELLIGENC

Activity 1
Project Work – Analysis of Electricity Consumption of Household Appliances Using AI Tool

Objective:
To collect and analyze data on the electricity consumption of commonly used household appliances from different brands using an AI-enabled data analysis tool

Instructions

1. Collect data on the electricity consumption of *10 household appliances* commonly used at home, such as Tube Light, Air Conditioner, Refrigerator, Microwave Oven etc
2. For each appliance, gather information from *three different brands* of your choice, eg LG, Voltas, Samsung etc.
3. Use *online or offline sources* such as product manuals, official company websites, electricity labels, or appliance specification sheets to collect the data.
4. Use any *AI-enabled application or tool* to analyze the collected electricity consumption data.
    1. Mention the name of the AI tool used for analysis.
    2. Prepare a detailed *analysis report* that includes:

    - Comparison of electricity consumption among the three brands
    - Identification of appliances that consume the maximum electricity
    - Graphs, charts, or tables for better understanding
    - Key observations and conclusions

5. Print the final report along with the analyzed data.
6. List and briefly mention *any five AI-enabled tools* that can be used for data analysis

Activity 2

Design a "Smart Home Energy System"

1. Explain the steps of computational thinking that will help in designing a smart home.
2. Write any 5 smart/AI enabled devices that can be used in these smart homes that will help in sustainable use of energy.
3. Write any five challenges that may arise while designing smart homes

PHYSICAL EDUCATION

Practical file

Prepare practical file in Scrap Book on the following topic:-

Write any one game of your choice (Basket Ball, Foot Ball, Cricket, volleyball, Table Tennis, Badminton, Tennis, Swimming, Chess, Taekwondo) which should include:-

- History of the Game (150 words)
- Fundamentals skills of the game (Any 5)
- Terminology of the game (Any 5)
- Rules of the game (Any 5)
- Neat and well labelled diagram of the court/field
- Common Injuries of the game (Any 3)
- Indian Sports Personalities and awardees of the game
- Name of National & international Venues tournaments of the game (any 3)

Note :- For all the above topics paste the related images.

MUSIC PROJECT WORK

Dear Students,
Prepare your Music Project File by following these instructions carefully:

Project File Rules:

Sheets: Use sheets that are plain on one side and ruled (Two-line) on the other. Plain side strictly for drawing or pasting pictures/diagrams.

Cover: Your file must have a Yellow cover. Decorate it creatively and clearly write "Project File of Music" on the top.

Length: You must write on all three topics given below. Each topic should be at least 3 to 4 pages long.

Topics for Music Project:

Biography (Choose Any One):


Pt. Ravi Shankar (Sitar player)



Pt. Bhimsen Joshi (Classical Singer)



Ustad Zakir Hussain (Tabla player)

Write about the life, musical journey, and awards. Paste relevant pictures on plain pages.

Families of Musical Instruments:

Describe the different categories. Draw a table with 4-5 examples each. Paste pictures for each category.

Science & Music (Music Therapy):


Explain the relationship. Focus on "Music Therapy" and explain how it helps in relieving mental and physical stress. Include related diagrams or pictures.

Last Date of Submission: 10 July, 2026

Marks will be awarded for neatness and creativity.

PROJECT FILE OF DANCE

HOLIDAY HOMEWORK

📌 PROJECT FILE RULES

- **Sheets:** Use white sheets, plain on one side (strictly for drawings/pictures) & ruled (two-line) on the other.
- **Cover:** Use bright color, decorate creatively, with "Project File of dance" on top.
- **Length:** Write on **ALL THREE** topics below.

1 Topic 1: BIOGRAPHY (Choose Any One)

✦ Write about life, dance journey, and awards of **ANY ONE** legendary artist:

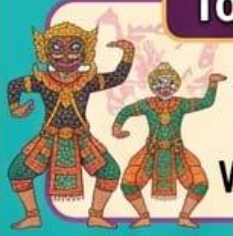
Pt. Birju Maharaj

Rukmini Devi Arundale

Guru Kelucharan Mohapatra

Write 2-3 pages. Paste relevant pictures on plain pages.

Topic 2: SOUTHEAST ASIAN DANCE



Describe any TWO different dances of Southeast Asia.

Write 1-2 pages on both. Paste pictures.

3 Topic 3: HISTORY OF DANCE (Indian Dance)

✦ Explain the relationship between history and dance.

**Ancient History*

**Modern History*

Write 1-2 pages. Include related pictures.

**Marks awarded for neatness and creativity.*

📅 **LAST DATE OF SUBMISSION: 10 July, 2026**

VISUAL ART PROJECT FILE

CLASS IX

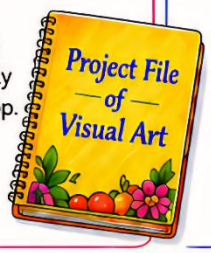
Dear Students of Class IX,

The Art Department has assigned a Visual Art Project File. Kindly follow the instructions carefully.

SHEETS SIZE: A3

COVER PAGE:

- Use a bright and attractive cover for the file.
- Decorate it creatively using colours, patterns, or art elements.
- Write "Project File of Visual Art" neatly and boldly on the top.



SHEETS:

- Use sheets that are plain on one side and ruled on the other side.
- The plain side should be used only for drawings, paintings, sketches, and pictures.

PROJECT LENGTH:

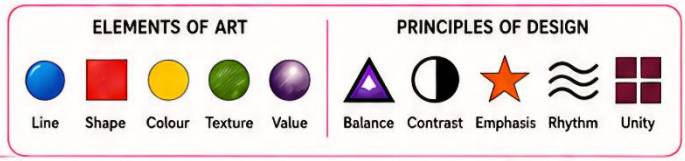
- Complete all four topics.
- Each topic should be **3–5 pages** long.

TOPICS FOR THE PROJECT:

1 ELEMENTS & PRINCIPLES OF ART

Explain the Elements of Art and Principles of Design with suitable examples and drawings.

→ Include colourful illustrations and diagrams.



2 STILL LIFE STUDY

Create a colourful Still Life Composition using objects such as fruits, flowers, bottles, pots, books, or daily-use items.

→ Focus on proper shapes, shading, colouring, light, and shadow effects.

3 FOLK ART

Write about any one Indian Folk Art form such as:

- Madhubani
- Warli
- Pattachitra
- Gond Art

→ Draw or paste related pictures and explain its origin, style, and importance.

4 BIOGRAPHY (CHOOSE ANY ONE ARTIST)

Write about the life, art style, and achievements of any one famous artist:

- Raja Ravi Varma
- M. F. Husain
- Pablo Picasso
- Abanindranath Tagore

→ Paste pictures of the artist and their famous artworks.

LAST DATE OF SUBMISSION: 10 JULY 2026

★ Marks will be awarded for neatness, creativity, and presentation.

ART DEPARTMENT