



MOUNT CARMEL SCHOOL, CHANDIGARH
Syllabus for Computational Thinking (CT) & Artificial Intelligence (AI)
Session: 2026-2027
Grade VIII
(Computational Thinking and Artificial Intelligence)

Modules:-

Computational Thinking

- Ch-1 Fractions in Disguise
- Ch-2 The Baudhayana - Pythagoras Theorem
- Ch-3 Proportional Reasoning - 2
- Ch-4 Exploring Some Geometric Themes.
- Ch-5 Tales by Dots and Lines.
- Ch-6 Algebra Play
- Ch-7 Area

Artificial Intelligence

- Ch-3 Data and Fairness in A.I.
- Ch-4 Ethics and Responsible A.I.

October- (Computational + Artificial Intelligence + Social Science)

Interdisciplinary Project (Incorporating CTAI)

Topic : INDIA'S URBAN LANDSCAPE

Evolution, Challenges, and Smart Solutions for Our Cities

Name: _____

Class & Section: _____

Roll No.: _____

OBJECTIVE - To explore how local urban areas are growing, identify everyday urban challenges (such as traffic, waste management, housing, or green cover), and learn how data and technology can help build cleaner, safer, and smarter cities.

TASK - Interview 3–5 family members, neighbors, or acquaintances of different age groups to understand their observations on your town/city's growth and daily urban challenges.

Ask them:

1. **How long have you lived in this city/area?**
☐ Less than 5 years ☐ 5–15 years ☐ More than 15 years
2. **What major positive change have you noticed in our city over the years?**
☐ Better transport/roads ☐ More shopping/housing
☐ Better amenities/parks ☐ Other: _____
3. **What is the biggest daily urban challenge you face?**
☐ Traffic congestion ☐ Waste management/garbage
☐ Lack of green space ☐ Water/electricity shortage

4. **How do you usually travel for daily chores or work?**
☐ Private vehicle (car/scooter) ☐ Public transport (bus/metro)
☐ Walking/cycling ☐ Auto/Cab
5. **How can technology or public awareness solve this problem?**
6. **Do you think our city is becoming cleaner, greener, and more organized? Why or why not?**

MY DATA:

Person	Years in City	Major Urban Challenge Faced	Primary Mode of Travel	Believes City is Improving? (Yes/No)
1. _____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____
5. _____	_____	_____	_____	_____

THINK LIKE A DATA SCIENTIST!

Study your responses and identify:

1. Which urban challenge was mentioned most frequently?
2. What was the most common mode of transport among the people interviewed?
3. What main reason did people give for urban issues (e.g., population growth, lack of planning, over-reliance on private vehicles)?
4. What key pattern did you observe in your data across different age groups or residence durations?

CTAI CONNECTION:

Computational Thinking Use your collected information to: *Collect* → *Classify* → *Compare* → *Identify Patterns* → *Draw a Conclusion*

Create a simple **bar graph** or **pictograph** below showing the most common urban challenges identified in your survey (e.g., Traffic vs. Waste vs. Pollution vs. Water Supply).

Artificial Intelligence:

Ask an AI tool:

“Analyse the following survey data about urban development challenges in my city and identify three major patterns or urban planning solutions.”

Then compare the AI’s response with your own findings:

- Did the AI identify the same patterns as you? ☐ Yes ☐ No
- Did you find anything in the AI’s response that needed checking or correction regarding your local city context?

What did I learn about using AI responsibly for geography and urban planning studies?

MY SMART & SUSTAINABLE CITY ALGORITHM:

Complete the sequence to solve an everyday urban problem (e.g., managing household waste or reducing traffic footprint):

Identify Urban Problem (e.g., Mixed Unsegregated Garbage)

Sustainable, Clean & Smart Urban Neighborhood

Remember:

Sustainable urbanization begins with individual action—reduce waste, plant trees, save water, and support public infrastructure.

MY SURPRISING INSIGHT:

One thing that surprised me about my city's growth or challenges from my survey was:

Share it with your class!

Be ready to share your one surprising finding and explain what solution you propose for India's growing urban landscape!

REFLECTION:

- The most important thing I learnt about urban planning and city growth from this activity is:
- One eco-friendly or civic habit I will follow to help my city stay clean and sustainable is.

December- (Computational + Artificial Intelligence + Hindi)

AI जासूस – सही या गलत?

विद्यार्थियों को एक छोटा हिंदी अनुच्छेद दिया जाएगा, जिसमें तथ्यात्मक और व्याकरण संबंधी गलतियाँ होंगी।

विद्यार्थी “AI जासूस” बनकर:
गलतियाँ खोजेंगे।
गलत वर्तनी पहचानेंगे।
व्याकरण की गलतियाँ ढूँढ़ेंगे।
सही वाक्य लिखेंगे।

January- (Computational + Artificial Intelligence)

FAIR AI: CAN AI BE FAIR TO EVERYONE?

Exploring Data, Fairness, Ethics and Responsible Artificial Intelligence

Name:	_____
Class & Section:	_____
Roll No.:	_____
Date:	_____

OBJECTIVE

To understand how data can influence AI decisions, recognise unfairness or bias, and learn how AI can be used ethically and responsibly.

TASK: FAIRNESS AROUND US

Think about situations where people are selected, grouped or given opportunities. Interview 3–5 family members, classmates or acquaintances and ask the questions below.

1. Do you think a computer/AI system can sometimes make an unfair decision? ☐ Yes ☐ No ☐ Not Sure
2. Where do you see AI being used in everyday life? ☐ Search ☐ YouTube/OTT ☐ Shopping ☐ Maps ☐ Education ☐ Other: _____
3. Should an AI system treat all people fairly? ☐ Yes ☐ No ☐ Not Sure
4. What could make an AI decision unfair? ☐ Biased data ☐ Incomplete data ☐ Human bias ☐ Other: _____
5. Should people check an AI decision before accepting it? ☐ Always ☐ Sometimes ☐ Never

THINK

If an AI system learns from data that is incomplete or biased, can its decisions also become unfair? Explain briefly.

MY DATA & MY OBSERVATIONS

DATA COLLECTION

Person	AI use noticed	AI can be unfair?	Main reason	AI decisions should be checked?
1.	_____	Yes / No / Not Sure	_____	Always / Sometimes / Never
2.	_____	Yes / No / Not Sure	_____	Always / Sometimes / Never
3.	_____	Yes / No / Not Sure	_____	Always / Sometimes / Never
4.	_____	Yes / No / Not Sure	_____	Always / Sometimes / Never
5.	_____	Yes / No / Not Sure	_____	Always / Sometimes / Never

THINK LIKE A DATA SCIENTIST!

1. Which AI application was mentioned most often?
2. How many people think AI can sometimes be unfair? _____
3. What was the most common reason given for unfair AI decisions?
4. What pattern did you observe in your data?

5. What conclusion can you draw from your survey?

AI, FAIRNESS & RESPONSIBLE DECISIONS

AI ACTIVITY

Enter only your anonymous survey results into an AI tool. Do not enter names, phone numbers, addresses or other personal information.

Suggested prompt:

“Analyse the following anonymous survey data. Identify three important patterns related to fairness and responsible AI. Do not make assumptions beyond the data.”

Paste/write your anonymised data here:

COMPARE HUMAN THINKING WITH AI

Question	My finding	AI finding	Same / Different
1. Most common AI use			
2. Main fairness concern			
3. Responsible AI habit			

Did the AI identify the same patterns as you? ☐ Yes ☐ No

Did you find anything in the AI response that needed checking or correction? ☐ Yes ☐ No

If yes, what did you check or correct? _____

🚫 FAIRNESS CHALLENGE

Scenario: An AI system is used to select students for a school activity. It was trained using old data in which one group of students participated more often than another group.

Answer:

1. Could this system produce an unfair result? ☐ Yes ☐ No Why? _____

2. What should a responsible person do before using the AI result? _____

3. Suggest one way to make the process fairer. _____

ETHICAL & RESPONSIBLE AI

☐ MY RESPONSIBLE AI ALGORITHM

Complete the sequence:

AI gives an answer/decision

_____	(Understand the problem)
_____	(Check the data/result)
_____	(Look for bias or unfairness)
_____	(Verify before using)

Use AI responsibly / Seek human help

MY RESPONSIBLE AI POSTER / MESSAGE

Create your poster or write your slogan below:

MY SURPRISING INSIGHT

One thing that surprised me about data, fairness or AI was:

REFLECTION

The most important thing I learnt from this activity is:
