

Project-Based Learning

**with Technology
integration**

From Activity to Inquiry



Let's begin with **Three Questions**

Real problems or textbook ones?

Technology: value or decoration?

Is a chart assignment a project?



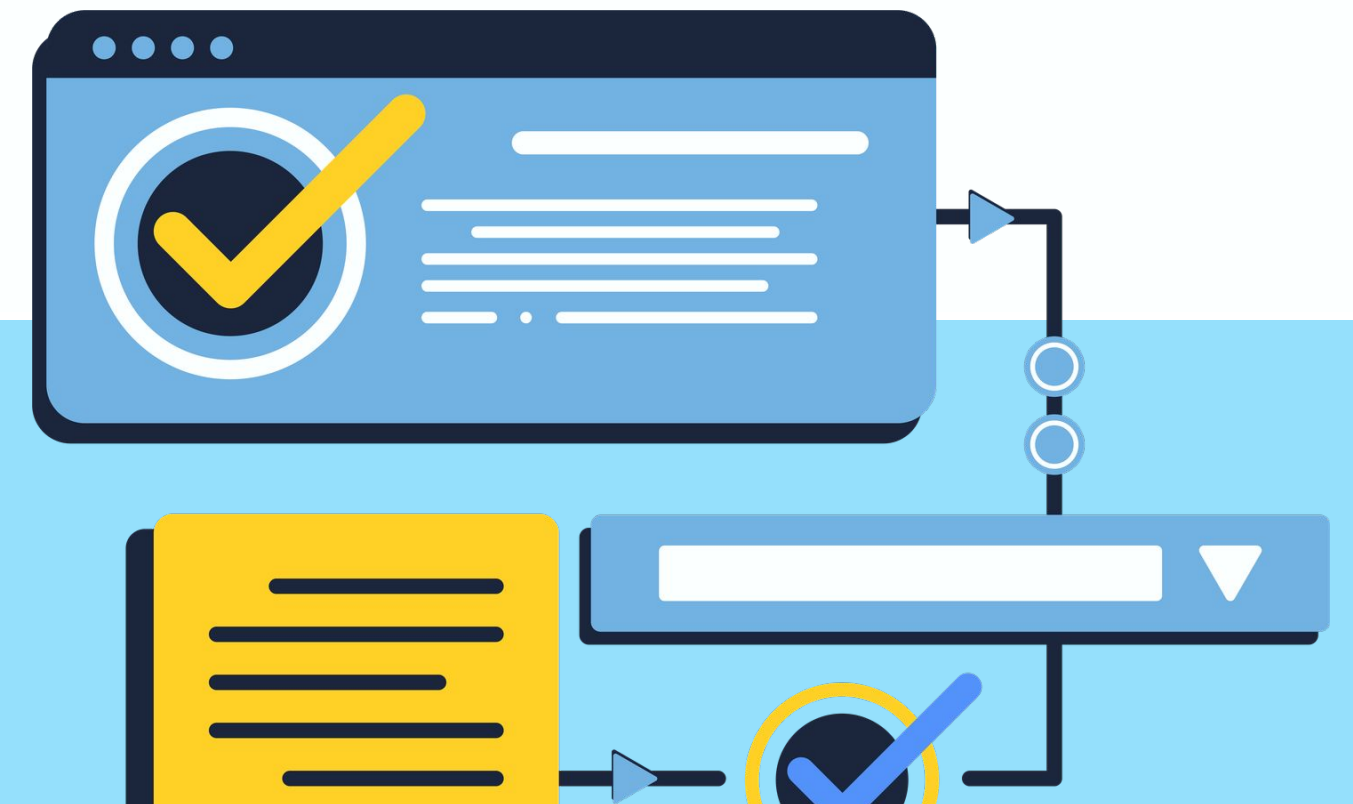
Project vs Project-Based Learning

A project is usually done after a chapter is taught: a product at the end. In Project-Based Learning, the project is the lesson. Students learn the content while answering a real driving question.



THINK OF IT AS DESSERT & MAIN COURSE:
PBL is the main course, not the treat after learning.

Idea adapted from PBLWorks.





Session Roadmap



Policy & Evidence



Designing PBL With Tech



Teaching, Learning, Assessing



Demo & Take-home Tasks

What Policy Says

NEP 2020 & NCF-SE 2023

- NEP 2020 calls for experiential, inquiry-driven & discussion-based learning (paras 4.4 to 4.6).
- NCF-SE 2023 recommends projects that connect subjects, & assessment that looks at competencies, not just



Enablers from the **Ministry of Education & NCERT**

PM eVidya: TV, radio &
digital

DIKSHA: e-content for
projects

PARAKH: Holistic
Progress Card



What Research Says

- Global studies show that **well-structured PBL improves achievement.**

+8 → +10

% points more students passed
AP exams, year 1 → year 2
(randomised trial)

(Saavedra et al., 2021, USA)

0.48

Effect size in Social Studies for
Grade 2 PBL in high-poverty
schools

(Duke et al., 2021, USA)

What Research Says

Cont...

- Indian data shows **why we need it, & national policy is already investing in hands-on, project-based spaces.**

37% | 40%

Class 9 national average in
Mathematics & Science

*PARAKH Rashtriya
Sarvekshan 2024)*

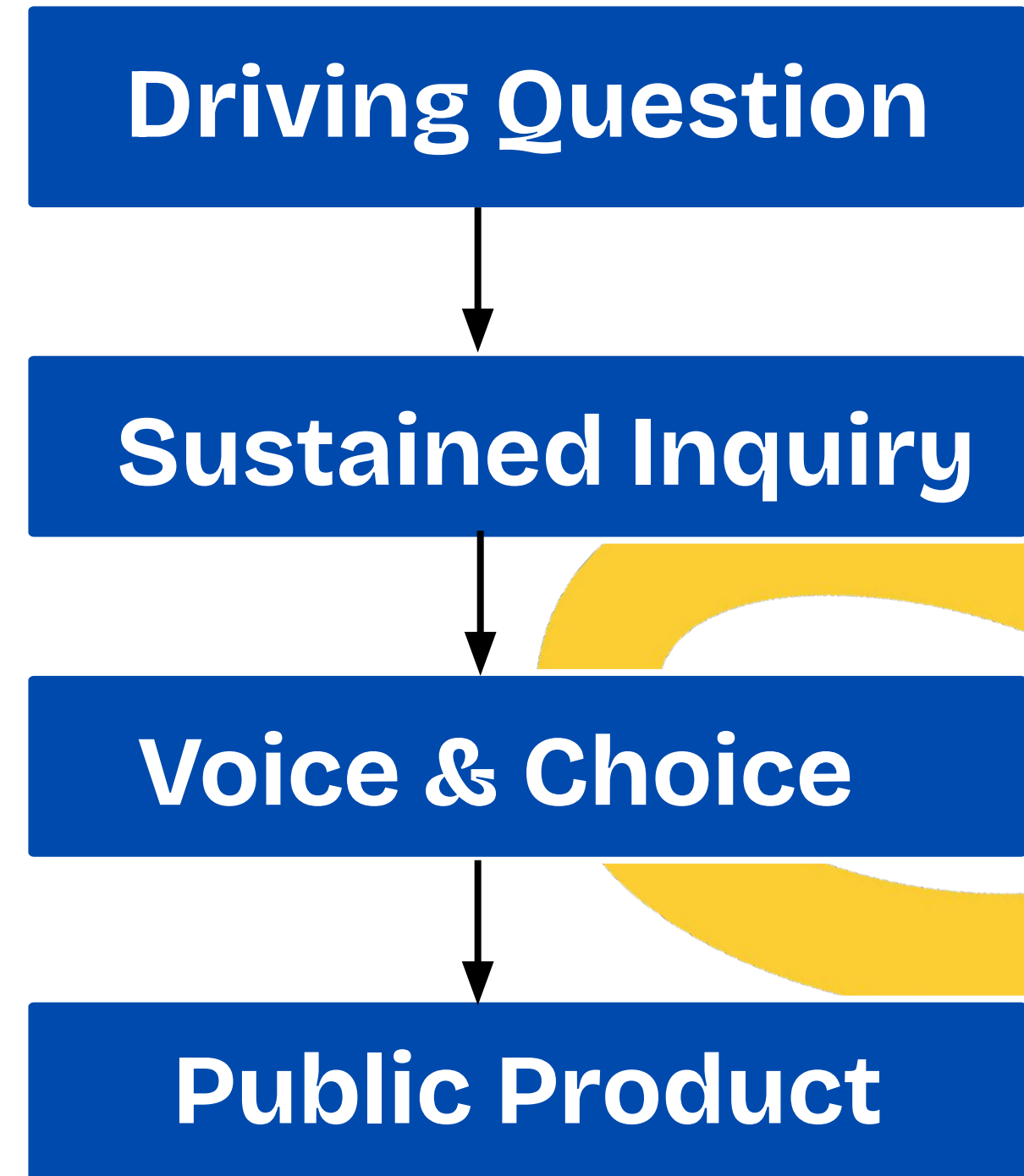
50,000

New Atal Tinkering Labs planned
in govt schools, on top of 10,000+
existing (Budget 2025–26)



What Makes PBL Work

Add authenticity, reflection, critique & revision, & a project becomes deep learning rather than a craft activity.





Where Technology Fits

Question: local news, maps, data

Inquiry: DIKSHA, PhET, Bhuvan

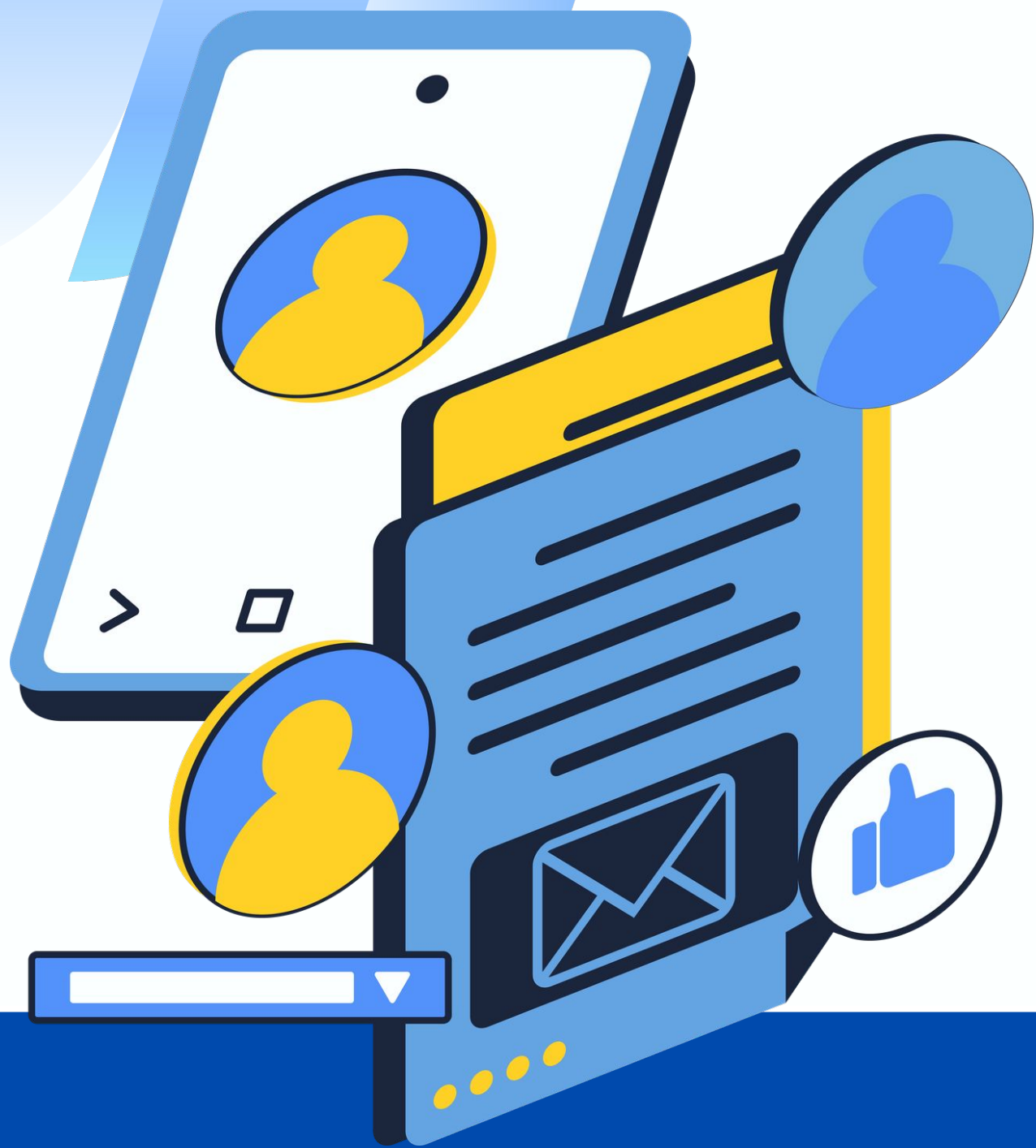
Teamwork: Google Docs, Padlet

Product: Google Sites, Canva

Common Misconceptions

"More Apps mean more learning."
"PBL means the teacher stops teaching." **"PBL is only for high achievers."**

Reality: PBL needs more planning & teaching, not less, & it can work for all learners.

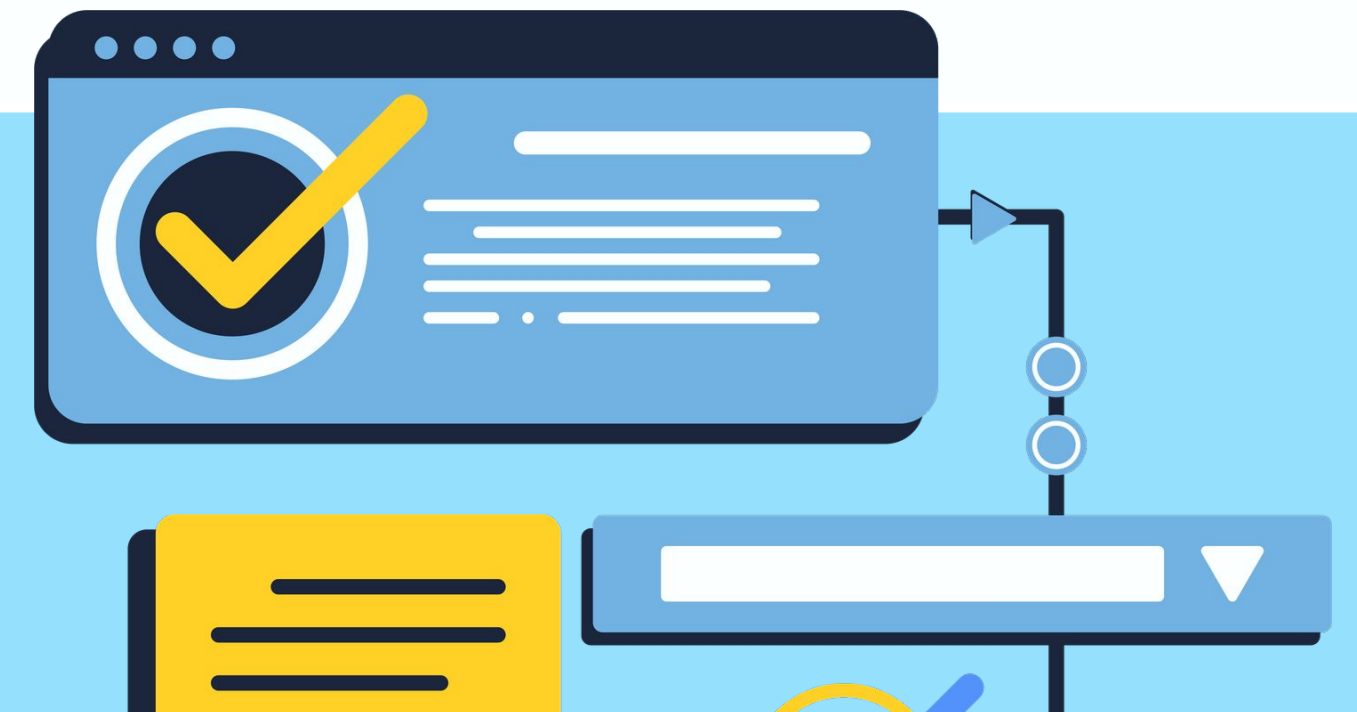


Advancement in Teacher's Role

Teacher moves from instructor to designer, facilitator & coach: framing the driving question, planning milestones & curating resources such as DIKSHA content, PhET simulations & Bhuvan maps.



Teaching doesn't disappear.
It arrives just in time, when
students need it.



Teaching Plan: The Water Project



Week 1: Launch

Pose the driving question: ***How clean is the water we use?***



Week 2: Research

Students explore **DIKSHA** content on water quality.



Week 3: Collect

Groups **survey** households with a Google Form & test samples.



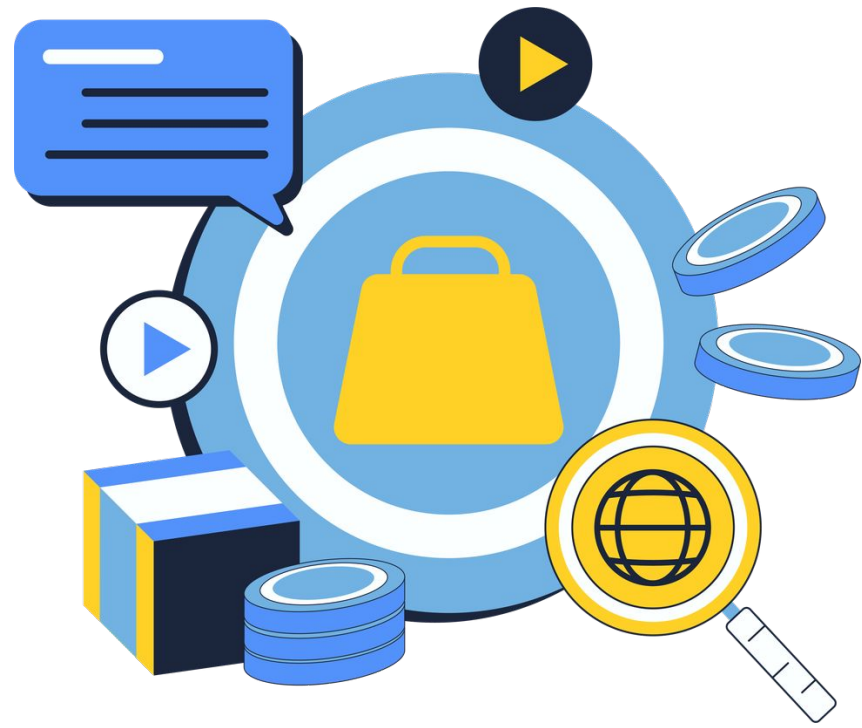
Week 4: Analyse

Data is charted in **Google Sheets**; causes & fixes discussed.



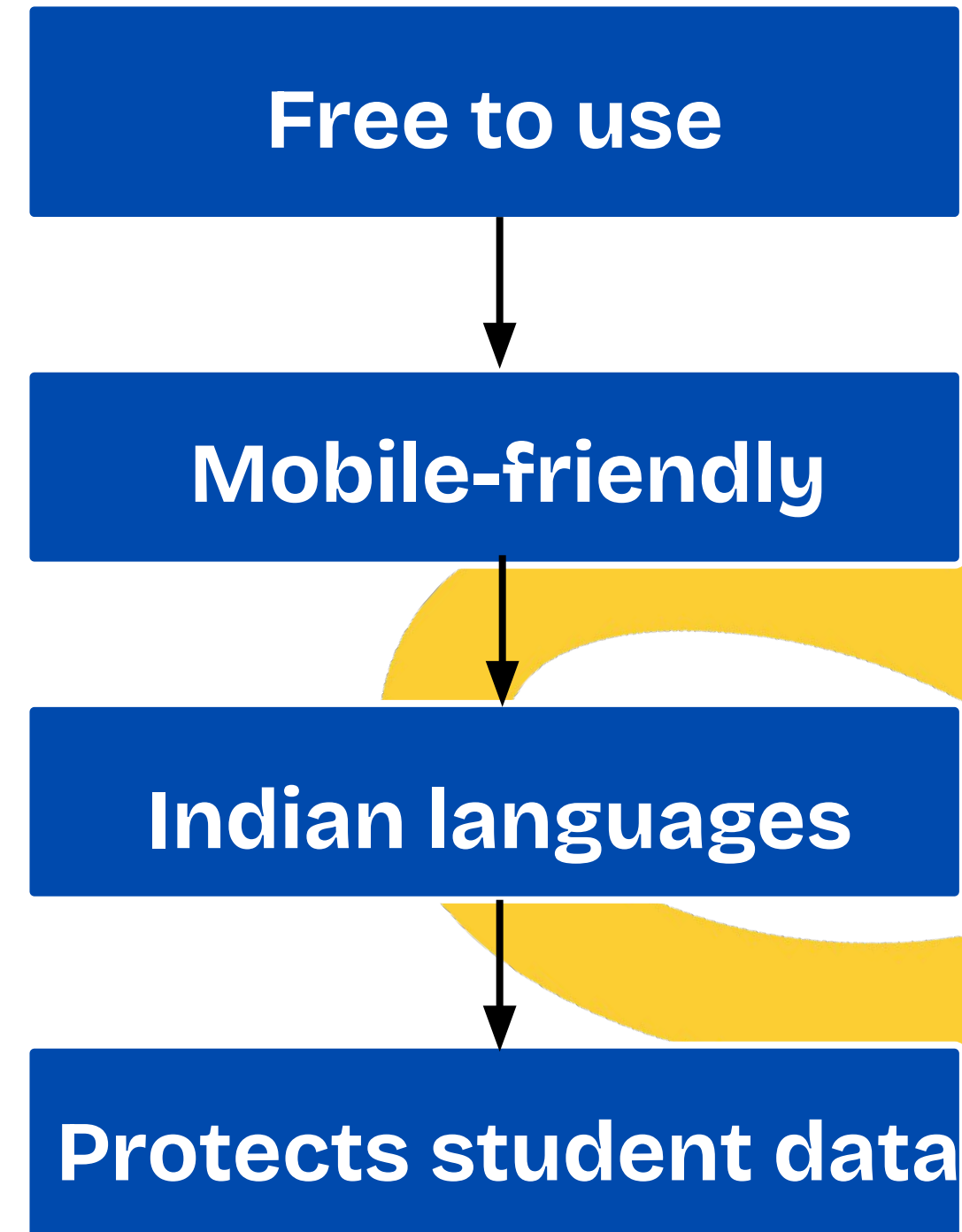
Week 5: Share

Findings shared with the school or panchayat on a **Google Site**.



Choosing the Right Tool

ALSO ASK: Does it work offline or on weak internet? Can teachers learn it quickly? If a tool fails these checks, a simpler option is usually better.

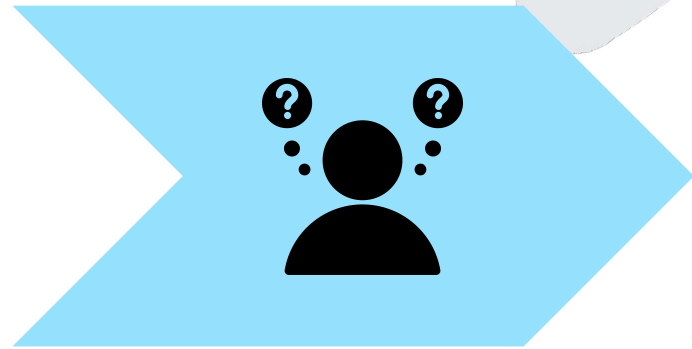


The Learning Cycle



Inquire

Research with
DIKSHA &
Google Earth.



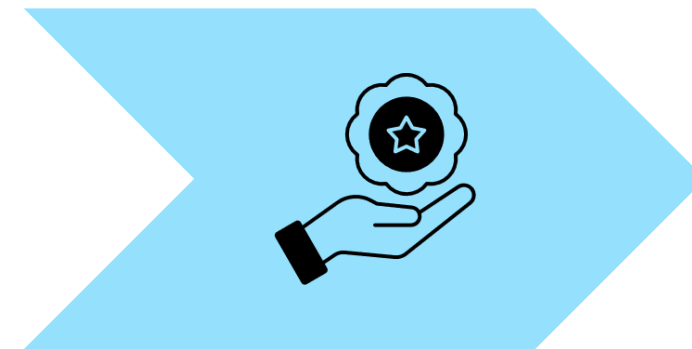
Collect

Gather data
with Google
Forms &
phone
cameras.



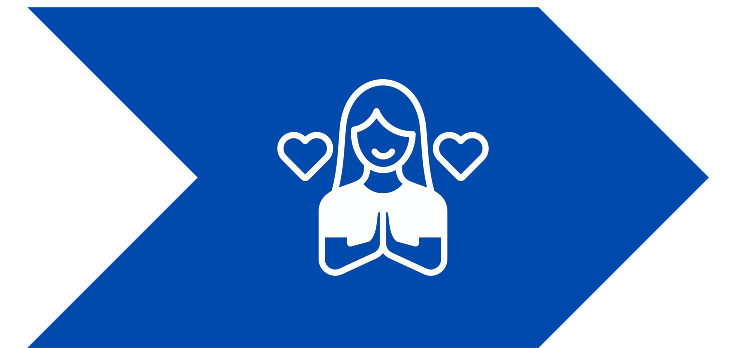
Analyse

Find patterns
& trends in
Google Sheets.



Create

Build with
Canva, Google
Sites or
Scratch.



Share

Present & get
feedback on
Padlet.

Through the Student's Eyes

The water project

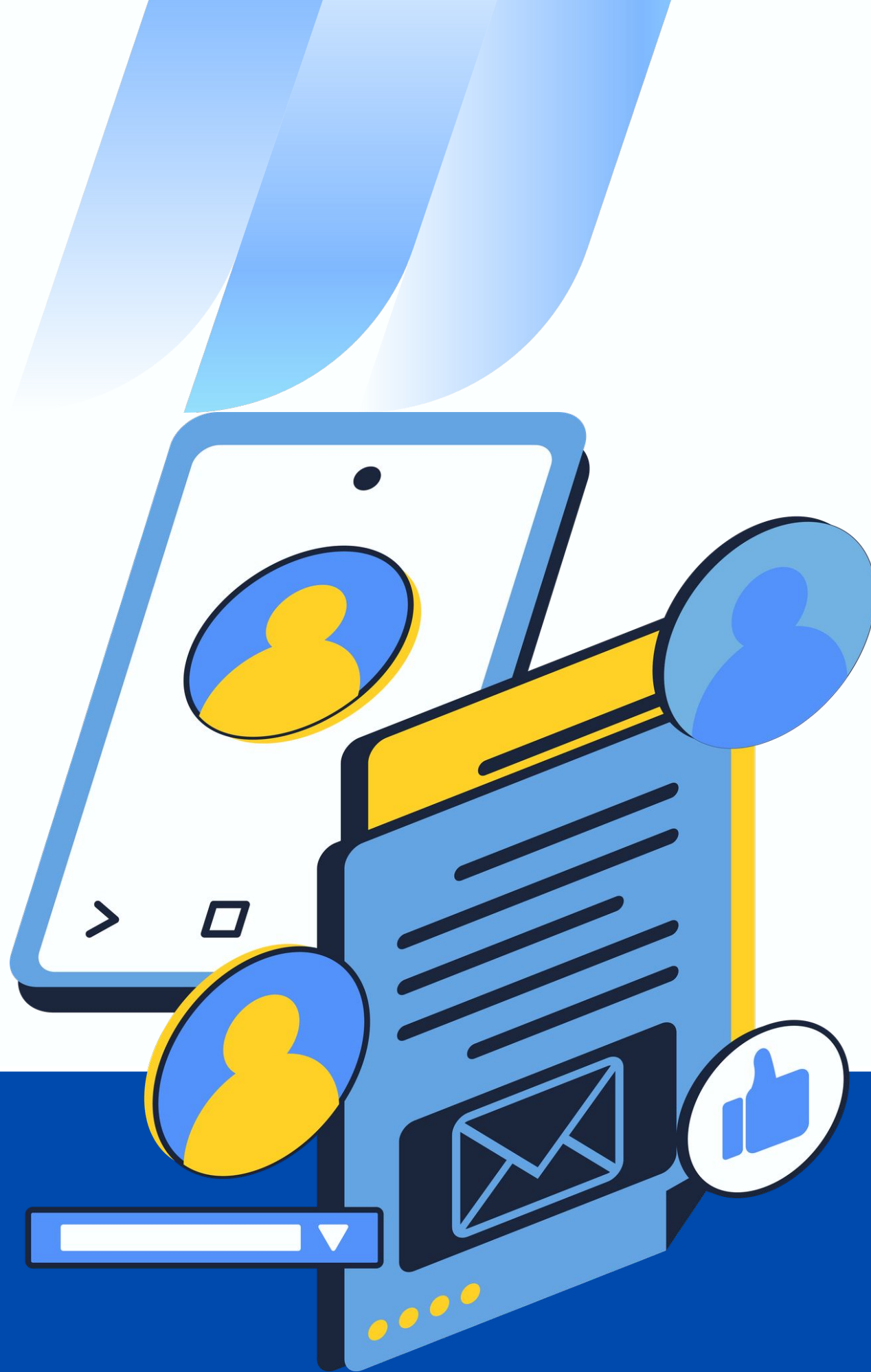
Students survey 20 households, photograph local water sources, chart what they find & build a one-page awareness site. Along the way they use Science, Mathematics & Social Science together.



Equity & Safety First

Not every child has a device. Plan shared devices, clear group roles (researcher, data lead, designer, presenter) & offline alternatives so that **NO ONE IS LEFT OUT.**

Teach responsible use: consent before photos, & no personal data online.





Technology for Assessment

Assess the process, not just the product. Plan a **formative checkpoint** at every milestone, not only a final display.

Rubrics in Forms

Peer review

Digital portfolios

Reflection journals

Sample Rubric: Water Project

5 Criteria, 4 Levels Each:

- Inquiry, use of data, collaboration, communication & reflection.
- Link each criterion to the competencies in the PARAKH holistic progress card.

Share the rubric with students
on day one, not at the end.



Sample Rubric: Water Project

Total: 20 points

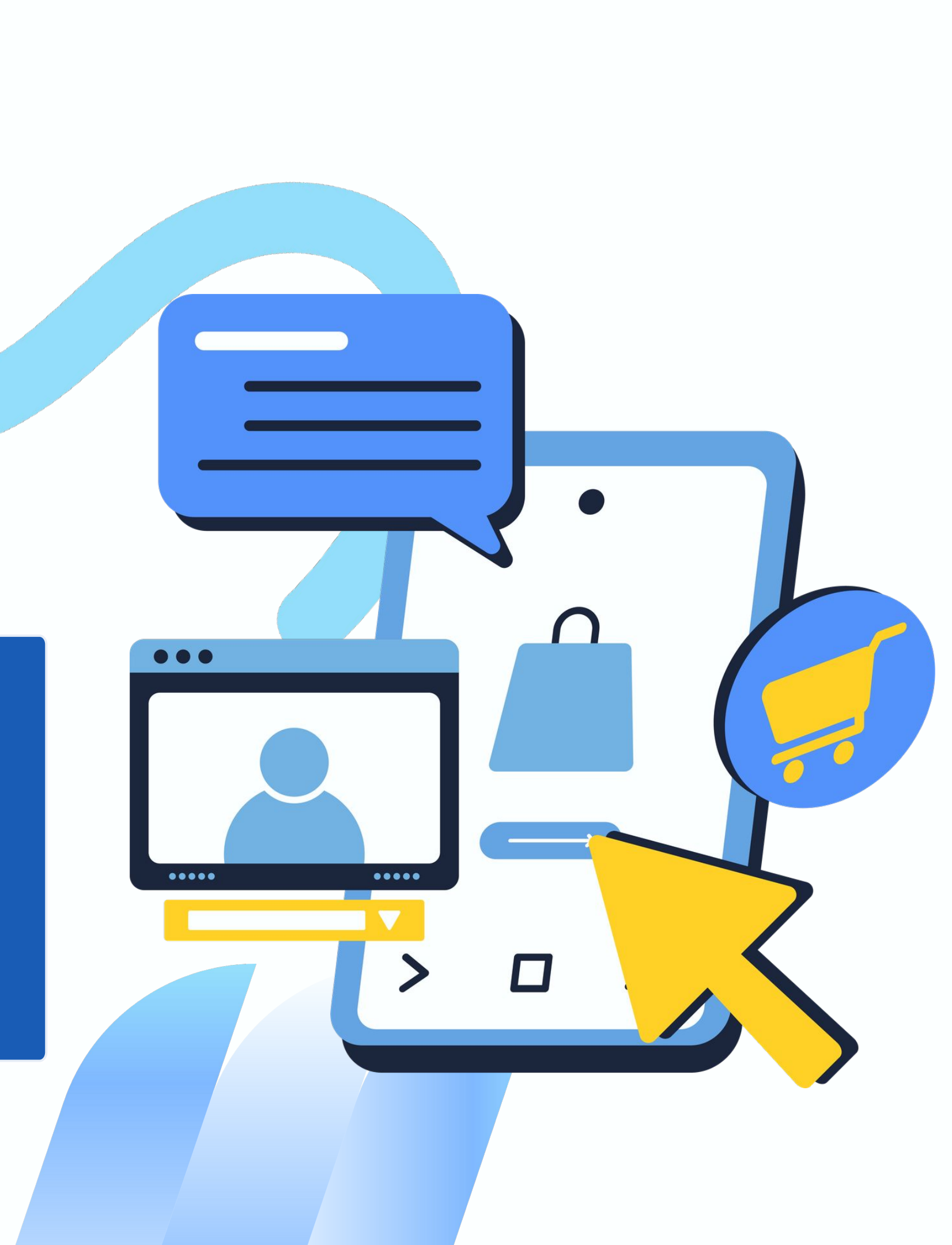
Criteria	Beginning 1 point	Developing 2 points	Proficient 3 points	Advanced 4 points
Inquiry	Asks few Ques; depends on teacher	Asks basic Ques.; uses one source	Asks relevant Ques.; uses DIKSHA & survey	Raises new Ques.; compares several sources
Use of Data	Data incomplete; no chart	Data collected; chart has errors	Accurate chart in Google Sheets; clear pattern	Explains causes & suggests fixes from data
Collaboration	Works alone; role unclear	Does own role with reminders	Fulfil role; supports teammates	Leads, resolves conflicts, shares work fairly
Communication	Message unclear; no audience in mind	Clear in parts; little evidence	Clear Google Site backed by evidence	Persuasive & ready for school or panchayat
Reflection	No reflection recorded	Describes what was done	Explains what was learnt & why	Plans improvements; links to own life

Link each criterion to the PARAKH Holistic Progress Card

Pause & Reflect

What will you grade in the water project: the chart, or the thinking behind it?

Take a moment to note one criterion you would add to your own rubric.



Live demo

Planning One Project

1. Question + DIKSHA resource

2. Google Form to auto chart

3. Showcase on Padlet





Key Takeaways



The project is the lesson



Tech serves inquiry, not show



Assess thinking, not just products



Start small + concise: one project a term

Your task after **This Session**

Write one driving question

Map any two tools to it

Draft a 04-criterion rubric



References & Resources

References

1. Ministry of Education (2020). National Education Policy 2020, paras 4.4–4.6. Government of India.
2. NCERT (2023). National Curriculum Framework for School Education 2023. New Delhi: NCERT.
3. PARAKH, NCERT (2025). PARAKH Rashtriya Sarvekshan 2024 (Classes 3, 6, 9). Ministry of Education.
4. Press Information Bureau (2025). Union Budget 2025–26: 50,000 Atal Tinkering Labs; Atal Innovation Mission, NITI Aayog.
5. Saavedra, A. R., et al. (2021). Knowledge in Action Efficacy Study Over Two Years. USC Dornsife CESR. cesr.usc.edu
6. Duke, N. K., Halvorsen, A.-L., Strachan, S. L., Kim, J., & Konstantopoulos, S. (2021). Putting PjBL to the Test. American Educational Research Journal, 58(1), 160–200.
7. Larmer, J., & Mergendoller, J. R. (2015). Gold Standard PBL: Essential Project Design Elements. PBLWorks. pblworks.org/goldstandard

Resources Used

DIKSHA: diksha.gov.in

PM eVidya: pmevidya.education.gov.in

Atal Tinkering Labs: aim.gov.in

PhET Simulations: phet.colorado.edu

Bhuvan (ISRO): bhuvan.nrsc.gov.in

Google Earth: earth.google.com

Google Forms, Sheets & Sites:
forms.google.com · sheets.google.com
· sites.google.com

Canva: canva.com

Padlet: padlet.com

Scratch: scratch.mit.edu



Thank You

**Try one project
this term!**