

SRISTI SS

Education project

Hello!

I am Saumay Garg

**I would like to implement
the spirit of RTE in places
where the system fails to
deliver**



1

The situation

**Let's start with the
situation in
Kharaghoda/Kutch**



Schools in The Little Rann of Kutch

- The schools are **tents** with a water tank, black board and a rag enclosure for toilet. Grades 1 to 8 sit in **one classroom**.
- Teachers change after a **shift of 15 days**.
- **School programs** are held out in the open
- No library, labs.
- Plenty sports equipments available
- Gantar is involved to some extent in the education, helping improve teacher accountability and occasional teaching via technology like tablets



Rann Shala

A child musn't be a labour

Children often work in the salt farms. This exposes them to injuries due to debris in the pits, health issues and has severe impact on their education - ultimately impacting the opportunities available to them.



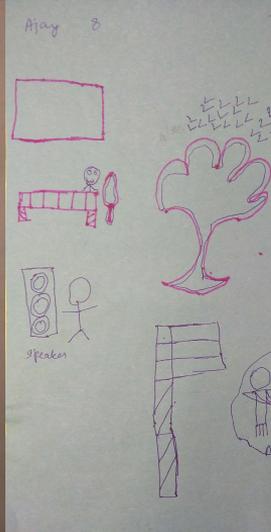
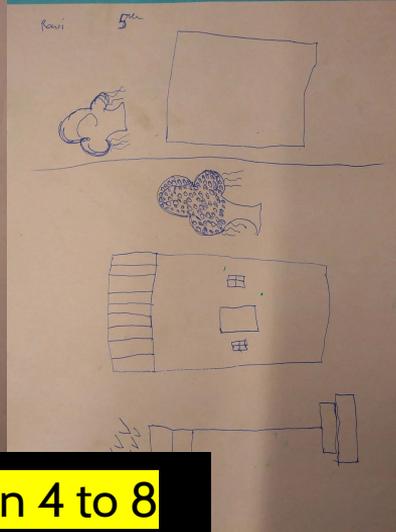
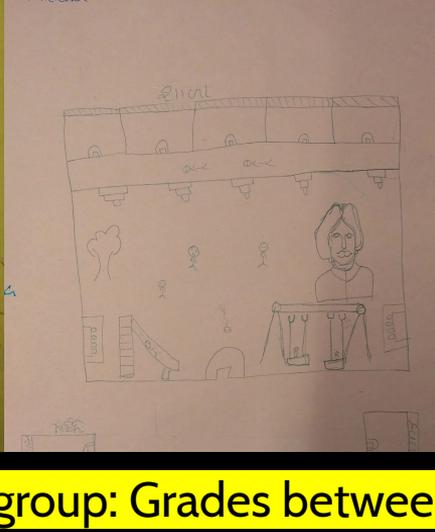


Teachers' perspective

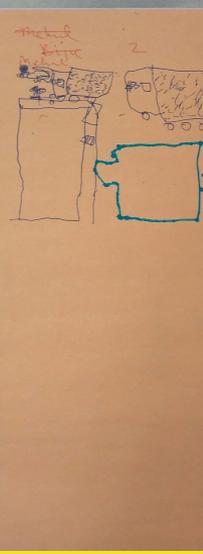
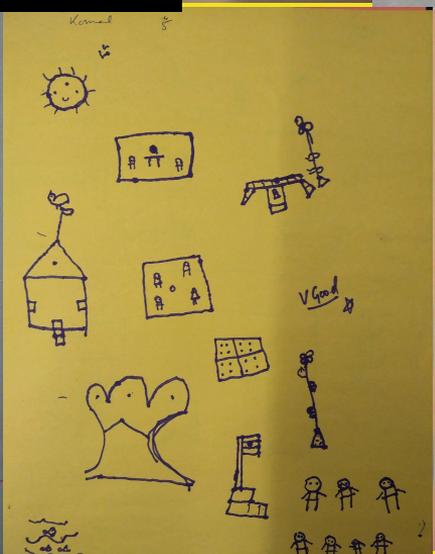
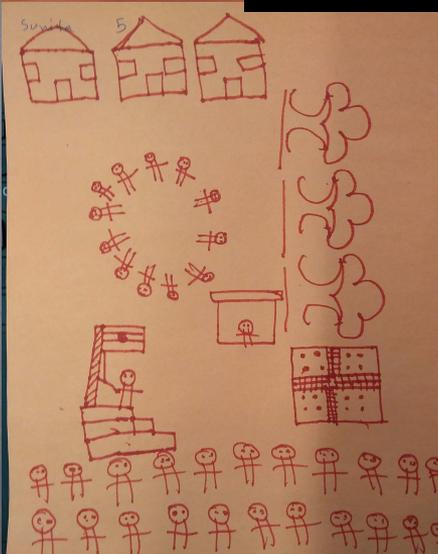
- While travelling to Rann difficulty seeing due to sandy winds and navigation issues cause hindrance
- Distance from village (~60 km)
- Low attendance
- Working conditions and safety concerns
- When a given subject teacher is in Rann that subject is not taught till their turn in rann ends
- Forced pass till 8 grade



Prathamik Shala



Target group: Grades between 4 to 8





Common Apps and uses

Youtube

Used to watch comedy, action and sometimes educational content. Issues include ads, buffering and english

Kids are aware of basic features, can operate without knowing how to read and often use audio search - also operated on gio phone

WhatsApp

Used for messaging, finds pleasure in checking what peers do via status. Issues include poor message deletion feature, less playful and english.

Kids are used to the app and use it frequently, knowledgeable of features like video calling

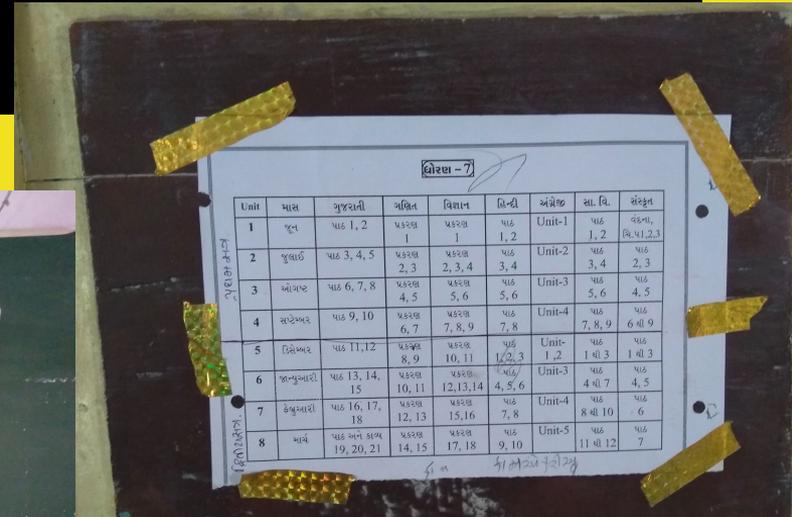
Games

Mobile games played include Racing, Ludo, PubG, Candy crush, Fruit ninja, Dog race, Hago.

Many of these are multiplayer (like ludo), peer interactions are essential, kids rarely stay/play alone

Study material

Kids don't often use mobiles for studies probably due to poor content, bad search results and lack of peer involvement





Issues with existing child oriented educational apps

- ⊙ Lack of peer involvement
- ⊙ Not really a game - only a classroom simulation (things like points are analogous to grades)
- ⊙ Repetitive
- ⊙ Increased amount of text content
- ⊙ Too many distractions in attempts to make it appealing (like colors, cartoons, animations, etc)
- ⊙ Loss of purpose of conveying educational material
- ⊙ Unavailability in local language
- ⊙ Too challenging or too simple
- ⊙ Poor UI
- ⊙ Motivation (like commercial use)
- ⊙ Poor funding for non-profits



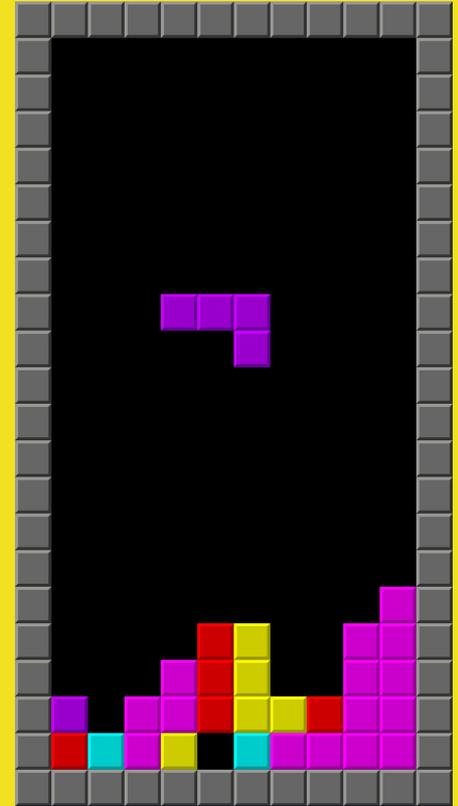
Guardians' views

- Child should be able to relate content to topics in books
- Focus on true learning via practicals, school performance still important for confidence
- Fear of unwanted costs/charges
- Tech may lead to social isolation, may get spoilt, Exposure to ill material, etc.
- Financial issues
- Parents' inability to pay attention to child's study due to illiteracy and work (lack of direction)
- Poor public communication skills due to lack of exposure in school
- Agariya Hostel is in Nav Kharaghoda, distance and emotional discomfort limits their usage
- Transport from Rann to village is closed for 1 month post rain, making children lag behind.
- Syllabus is not covered completely in school

Constructivism

We learn better by building on top of what we already know.

1. Knowledge is constructed, not transmitted.
2. Prior knowledge impacts the learning process.
3. Building useful knowledge structures requires effortful and purposeful activity.



Class 7
Chapter 4: Heat

Dark surfaces absorb and radiate more heat.

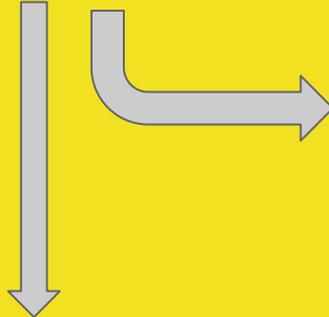


Ch 7: Weather and climate

Ch 4: Heat & Ch 9 (Class 9): Force and laws of motion

Ch 8: Winds and storms

Does it relate to the greenhouse effect? Is it present on the vegetable farm?



It relates to the climate too!

Greenhouse prevents heat loss by convection (Intro to density and buoyancy)



Hot air is lighter
Development of storms and cyclones

**MATCHSTICK
MECANNO
(Joint-of-two)**

**Bicycle
Valve
Tube**



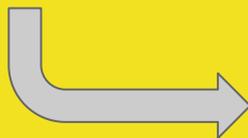
Matchsticks

CUBE



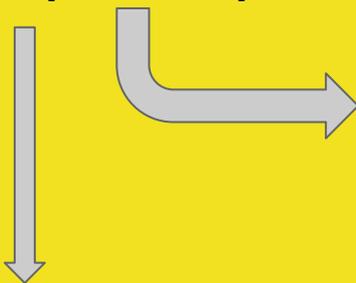
PYRAMID

Salt dissolution in water



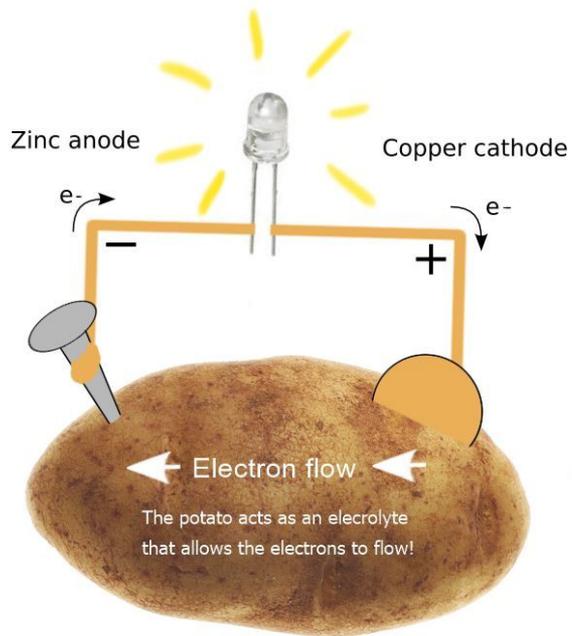
- Size/ shape/structure of the salt crystal
- Does boiling (changing rate of evaporation) affects the crystal formation?

Replicate crystal lattice using matchsticks



Understanding of the concept of atoms by joining cubes in class to make a bigger cube

Different Molecular geometries (tetrahedral, octahedral, etc.)



TOYS FROM TRASH

CREDITS:
DESIGNED BY LG / KOREA

COURTESY : DEPT. OF PHYSICS
UNIVERSITY OF PUNE, INDIA



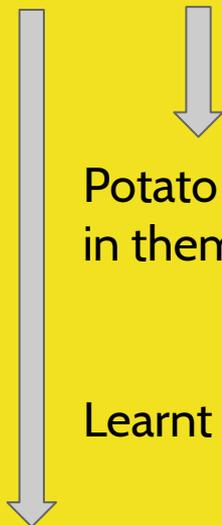
CLASS 7

Ch 2: Nutrition in animals

Ch 5: Acids, Bases and salts

Ch 6: Physical and Chemical changes

Salt water/ potato/ lemon battery



Potato has phosphoric acid. What other foods have acids in them - folic acid, etc.?

Learnt how to produce salt (acids and bases)

Salt water , ions, electricity, sources of energy. This is a chemical change

What materials can we use?

- Zn Substitute: Galvanized nails, maybe some other metal?
- Copper wire coil
- Any other electrolyte?

CLASS 8

**Ch 4: Metals &
Non-Metals**

Do liquids conduct electricity?



CLASS 7

**Ch 14: Electrical
circuits**

How many of these batteries do I need light a bulb?



Electric circuits - arrangement
(parallel/series)



CLASS 8 & 9

Ch 11: Force and pressure

MATHEMATICS

Geometry and shapes

Corrugated structures

- Force and pressure ($P=F/A$)
- Which shape does better?



Can try
making DIY
corrugated
furniture!



- Education, a legal mandate may take the form of pointless despair due to
- Traditional teaching practices are ineffective to teach in a one-room school system.
- lack of use of concepts taught in the school
- Incompetence of teachers
- Prevents any reduction in child labour in fields

Effects

- The This may lead parents and students to **view education as a waste of time**
- Lousy reputation
- High dropout rates

Issues with DIY activities

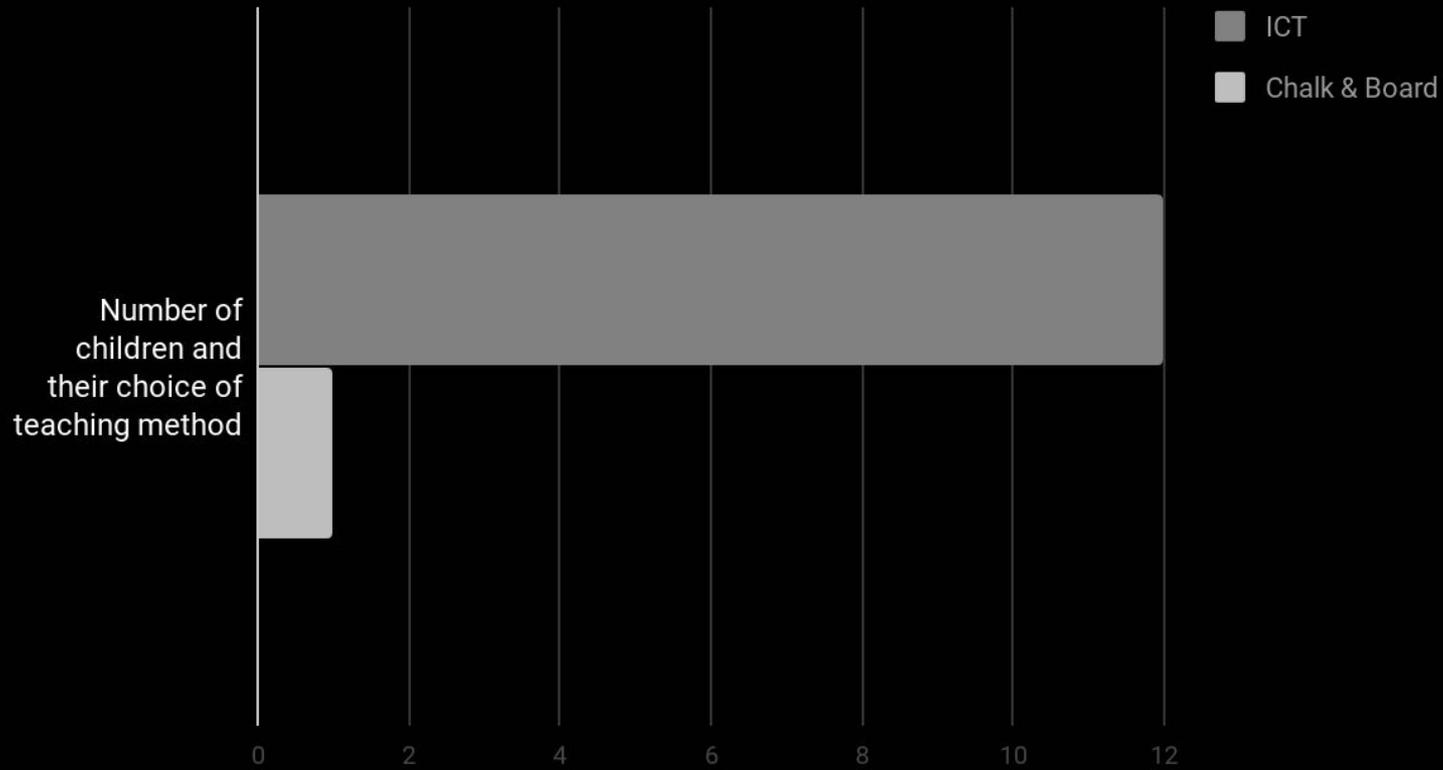
Resource unavailability

No one to teach

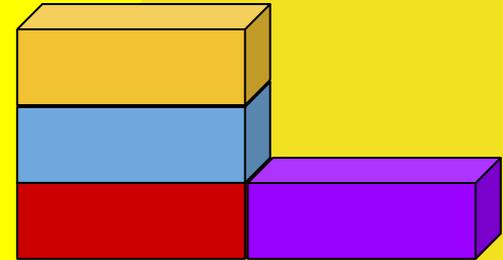
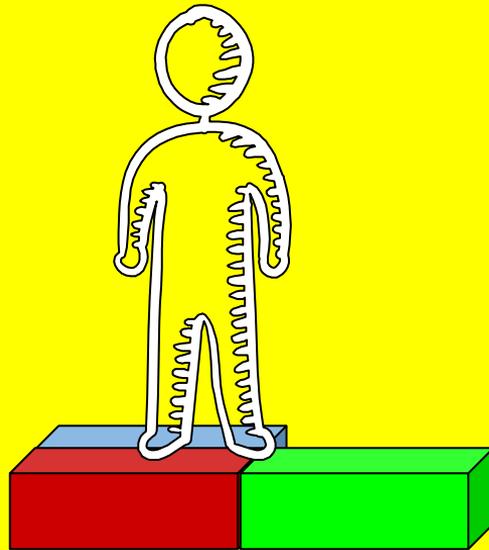
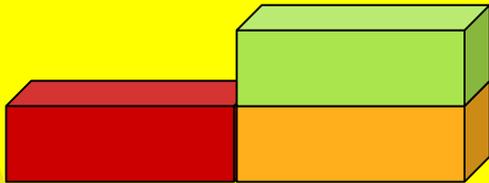
“Too old for such projects”

School work and internet usage

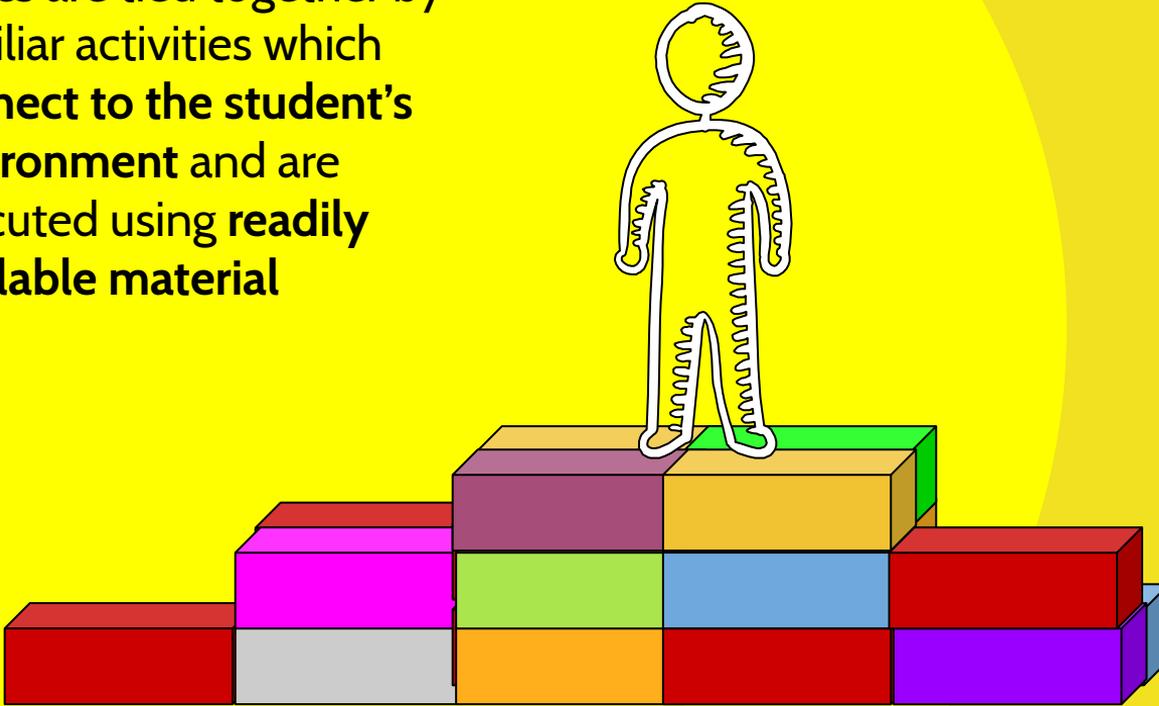
Choice of teaching method



From the Unconnected clusters of information...



The concepts from various topics are tied together by familiar activities which **connect to the student's environment** and are executed using **readily available material**



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**How can we
implement
this?**



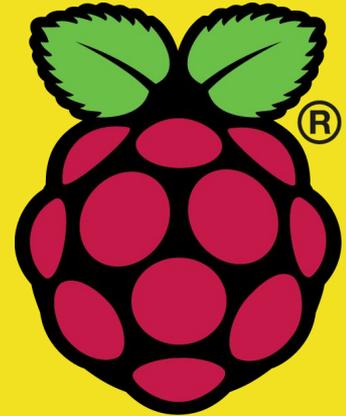
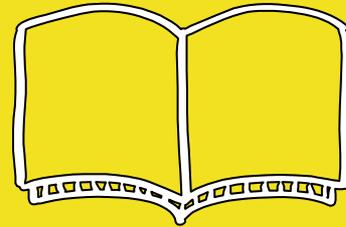
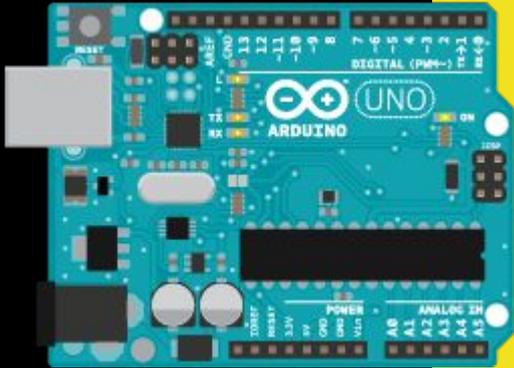
Presenting medium

- Desktop computer
- Tablets
- Laptops
- Smartphones



Other
options may
be
considered

Chromebooks, Raspberry Pi, Arduinage, etc. Could also
be utilized.



Teacher learning & competence

- When teachers teach using practicals, they were **more focused on developing own technical skills, and sought more information.**
- If **understanding is made easier for kids**, teaching becomes easier for them naturally
- Teaching effectiveness \propto **ability to “practice what they preach”**



Discussion, teacher learning: **Professional conversations between students teachers teaching similar subjects.**



Thanks!

Any questions?

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Credits

Special thanks to all the people who
spent their time teaching me about their
lives

And of course Dr. Ted