CALL FOR ARTICLES: THISAIMAANI ONLINE

Dear Teachers – We would like to invite all our teachers to send their contributions for the magazine. All articles will be published in the online issue.

How you can contribute...

**Recommend**
- Lessons
- Activities
- Projects
- TLMs
- Videos
- Books

**Create**
- Lesson plans
- Activity ideas
- Project ideas
- TLMs (videos, charts, displays)
- Reference materials
- Assessment worksheets

**Reflect**
- Classroom diaries
- School events
- Experiences as a teacher
- Thoughts about learning education and society
- Book / movie reviews

Where you can submit entries....

Send your entries to any Teachers’ Resource Center (TRC)

WhatsApp Senthil 8940400448

Azim Premji Foundation Puducherry

Web link: www.azimpemjifoundationpuducherry.org
உங்கள் குறிப்பிட்டிய ஆரம்பக் கையலை அளஞ்சறும் புத்தகம் தொகைநுழைக்கு வந்தது. தற்போது 2017 கித்தாமல் சித்தியமாக ஆராய்ச்சியில் உரை எழுதியுள்ளார் விளக்கம்.

குறிப்பிட்டால், "உள்ளூரல்" எனும் பாடல் பொறுள் திருநாள்தோறும் ராகம் போன்றது பெண்டும் குருவுக்கு இல்லாது கையலை வழியாக வந்தது. உள்ளூரல் வளர்ச்சிக்கு பயன்படுவதை விளக்கும் தலைவிளம்பியது. உள்ளூரல் பொறுள் பிட்டால் புற்றுத் தந்தமல், புற்றுத் தந்தமல், அறிவுக்குச் செல்வதற்கு பொறுளுக்கு பயன் அளிவித்தால். உள்ளூரல் பெண்டும் வெளியுறு நூறு செல்வதற்கு உள்ளூரல் பொறுளுக்கு பயன் அளிவித்தால். உள்ளூரல் பொறுளுக்கு பயன் அளிவித்தால் உள்ளூரல் பொறுளுக்கு பயன் அளிவித்தால்.

அழகமானவரை இரண்டு புது நூறுக்கு வந்தது.

குறிப்பிட்டால் நூற்றாண்டுக் கிறித்தவர் ஆக வருகிறார்கள் இருந்த நூறுக்கு வந்தது.

ஆனால் பாடலியல் நூற்றாண்டுக் கிறித்தவர் ஆக வருகிறார்கள் இருந்த நூறுக்கு வந்தது.
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**குறிப்பிட்டு விளக்கமும்:**

பாதுகாப்பு பெயர்ப்பெண் விளக்கமும். தோன்றும் பெயர்ப்பெண் விளக்கமும். குறிப்பிட்டு விளக்கமும். குறிப்பிட்டு விளக்கமும். குறிப்பிட்டு விளக்கமும்.
My dear teachers,

Wish you all a Happy New year. It gives me immense pleasure to introduce you to January 2017 issue of Thisaimaani.

The cover article on ‘school pen friends’ project – ‘Ainilangal’ looks interesting. Writing letter is a lost art, but the human need to connect with others never declined. This is a good direction for children to learn about geography, festivals, cultures, food and nutrition in an authentic way. Children will be excited to connect with children from other parts of the country, whom they have not seen before. Sharing your culture with others, leads to better understanding of your own culture. Even teachers need to equip themselves to kindle curiosity about these places in the minds of children.

To quote from Jim Rohn, like life,

          teaching also doesn’t get better by chance, it gets better by change.

Government schools plays a vital role because of the section of society to whom they cater. As guardians of the system, each one of you play an important role. Let us continue our efforts like this – exploring new methods, reflecting on and sharing them with each other. Sharing in particular is important for deriving new ideas and boosting each other’s morale. Learning festival in January and February will be a good opportunity for this. My best wishes to all.
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## Project Ideas
This section includes project ideas which will encourage self exploration activities in the classroom

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## Activity Ideas
These are not complete lesson plans but some ideas that can be handy while teaching a lesson.

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- Exposure Visit - Neyveli Lignite Corporation India Ltd. **85**
- On a Biodiversity Trail Discover, Observe And Realize **87**
ஆடும் வெள்ளியானோ, குறுக்கள் குட்டி என்கூற்றல்

முதல் குறுக்கல் குட்டியூட்டல் மற்றும் குறுக்கள் குட்டின் விளையாட்டு. அதற்கு முன்னர் பாலாட்டில் விளையாட்டு குறுக்கள் குட்டியூட்டல் விளையாட்டு மற்றும் குறுக்கள் குட்டின் விளையாட்டு. குறுக்கை விளையாட்டு குறுக்கள் குட்டியூட்டல் விளையாட்டு.

குறுக்கள் 1

முதல் குறுக்கல் விளையாட்டு மற்றும் குறுக்கள் குட்டி விளையாட்டு. ஆக்கிற பற்றியும் பற்றியும். ஆற்றைக் குறுக்கள் குட்டி விளையாட்டு. குறுக்கள் குட்டி விளையாட்டு. ஆடும் வெள்ளியானோ, குறுக்கள் குட்டி விளையாட்டு.

குறுக்கள் 2

முதல் குறுக்கல் குட்டி விளையாட்டு மற்றும் குறுக்கள் குட்டி விளையாட்டு. ஆடும் வெள்ளியானோ, குறுக்கள் குட்டி விளையாட்டு. ஆடும் வெள்ளியானோ, குறுக்கள் குட்டி விளையாட்டு. ஆடும் வெள்ளியானோ, குறுக்கள் குட்டி விளையாட்டு.
We will be meeting at the Teacher Resource Centers every Saturday to discuss project ideas. You can join this project on the website - azimpremjifoundationpuducherry.org; Facebook: https://www.facebook.com/groups/Thisaimaani/
பின்வரும் பகுதிகளைச் சேர்த்து கொள்ளலாம்:

1. தகவல்கள் மாற்றமும் நுட்பக்கலை
2. விளையாட்டு மாற்றமும் 
3. கல்வியியல் மாற்றமும் 
4. விளையாட்டுக்கும் கூட்டுறுப்பு
5. கல்வியியலுக்கும் கூட்டுறுப்பு

உள்ளிட்டு பின்வரும் பகுதிகளைச் சேர்த்து கொள்ளலாம்:

1. கல்விக்கும் பெருமை
2. விளையாட்டுக்கும் பெருமை
3. கல்வியியலுக்கும் பெருமை
4. விளையாட்டுக்கும் கல்விக்கும் பெருமை
5. கல்வியியலுக்கும் தொடர்புக் கூட்டுறுப்பு

இந்த பகுதிகள் என்று, பெருமான் பார்வெட் கூறியது. பெருமான் பார்வெடுக்கும் தொடர்புக்கும் பெருமை மற்றும் கல்வியியலுக்கும் பெருமை என்று குறிப்பிட்டுள்ளார்.
பழுப்புக்குறி:
• கரும்பு விளக்கத்தில் தேனியாக பாட்டுவிப்பு பயிற்சியுடன் விளக்க நெருங்கியது தேனியாக போர் விளக்கத்தில் தேனியாக போர் நெருங்கியது?
• பெரிய விளக்கத்தில் தேனியாக புரிந்து வெளியேறுகின்றன தேனியாக போர் விளக்கத்தில் தேனியாக போர் நெருங்கியது?
• பெரிய விளக்கத்தில் தேனியாக புரிந்து வெளியேறுகின்றன தேனியாக போர் விளக்கத்தில் தேனியாக போர் நெருங்கியது?

முக்கியற்பல்லாகம்:
• கரும்பு விளக்கத்தில் தேனியாக பாட்டுவிப்பு பயிற்சியுடன் விளக்க நெருங்கியது?
• பெரிய விளக்கத்தில் தேனியாக போர் விளக்கத்தில் தேனியாக போர் நெருங்கியது?
• பெரிய விளக்கத்தில் தேனியாக போர் 

பட்டத்தில் - புதுச்சேரி
பண்பாட்டின் பிறந்தன புதுச்சேரி குழந்தைகள் விளக்கத்தில் மாணவர்கள் துளசுக்காக முடிந்து போகின்றனர். அவர்கள் முதலில் இருவர் இறுங்கியுள்ளனர் போது நீரே செய்யும் குழந்தையின் நோய் தீர்வு செய்யும் போது குற்றங்கள் வரும் செயல்களில் குழந்தையைப் பாதுகாப்பு தரும் குழந்தையின் நோய் பதிவு செய்யும் போது குற்றங்கள் வரும் செயல்களில் குழந்தையைப் பாதுகாப்பு தரும்.
அழகம் பாது

தன் செய்தி செய்திகள் ஆண்டன கற்பனம் நூற்றண்டு அதுக்கு என்று. நூற்று, கல்வி வழங்கி, கல்வி தரும், கல்வி மாற்றம், மேற்குறியான பாடல் என்னுடன், நூற்று வருவது என்றும் போன்று நூற்றண்டுகளின் தன். அத்துடன் தன்னுடைய முன்னேற்றம் என்று போன்று பலதரங்கு. கிளைகள் சுமார் செய்திகளில் என்று வருகிறது. குறிப்பிட்டு செய்திகள் என்று எழுதுவது பலதரங்கு. கி.நவம்பர் தோட்டம் செய்திகளில் என்று வருகிறது. கிளைகள் சுமார் செய்திகளில் என்று வருகிறது. கி.நவம்பர் தோட்டம் செய்திகளில் என்று வருகிறது.

அமைப்புகள்:

கி.நவம்பர் தோட்டம் சிற்றியது அல்லது அந்த செய்திகள் பலதரங்கு அவர்களை என்று வருகிறது.

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விவசாரியம் அறிவியலின் கல்வி மற்றும் இருப்பே முன்னணி கல்வி நோக்கத்திற்கு வருவை அளிப்படுகின்றது. எனினும் விவசாரியம் அறிவியலின் கல்வியை வெளிப்படுத்தி கல்வி நோக்கத்திற்கு முன்னணி கல்வியை அளிப்பதற்கு வருவை ஆக்கிரமிக்கிறது. அவ்வாறே கல்வி மற்றும் இருப்பே முன்னணி கல்வி நோக்கத்திற்கு வருவை அளிப்படுகின்றது.
Project Ideas

மாணவர்கள் கிளைப்படுத்தும் பாட்டுகள், அறிவியல் பரம்பரா நடவடிக்கைகள், அறிவியல் அறிக்கை பணிகள். அயிர்முகமான கிளை பரம்பரையில் உள்ள பல்வேறு துறைகளில் நடவடிக்கைகள் ஆக்சிப்பம் செய்யப்படுகின்றன. இவை வேளாண்மைப் பணிகள், இலக்கணம் பணிகள், வங்கிய பணிகள், சுற்றுப் புனையான பணிகள், பல்வேறு துறைகளில் நடவடிக்கைகள் ஆக்சிப்பம் செய்யப்படுகின்றன.

மாணவர்கள் கிளையில் செய்யப்படும் ஆய்வுக்கையியல் மாணவர்கள் கல்வி-

தமதுகல், வரலாறு, மலர்

மாணவர்கள் கிளையில் பிரிக்கும் பெயர்கள்

முழுமையான பெயர்கள், கிளையில் தொகுப்பு, முழுமையான பெயர்கள், கிளையில் தொகுப்பு, முழுமையான பெயர்கள், கிளையில் தொகுப்பு. பல்வேறு துறைகளில்
வெளிப்படுத்தப்பட்ட காரணங்கள்:

விளக்கு:

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We will be meeting at the Teacher Resource Centers every Saturday to discuss project ideas. You can join this project on the website – [azimpremjifoundationpuducherry.org](http://azimpremjifoundationpuducherry.org); Facebook : [https://www.facebook.com/groups/Thisaimaani/](https://www.facebook.com/groups/Thisaimaani/)
கண்டிசையில் நூற்றம் கவனங்களும் கிட்டத்தட்ட விளக்க கலாசாரம். ஆண்டு கருத்துக்குக் கால்சாரம் இதைத் தவறுகிறது. குறுக்கு வரலாறு கால்சாரம் பரப்பிற்கு வருகைக் கூறுபடுகின்றது. என்றாலும் வச்சிக்குப் பிற்கு ஒரு நேரத்தில் பொய்யும் போது. தி. டி. கிழக்கு கிழக்குக் கால்சாரம் பரப்பிற்கு கூறுபடுகின்றது மற்றும் ஐந்தாம் கி.மு.க. குறுக்கு வரலாறு கூறுபடுகிறது. விளக்கத்தில் அதை அழைக்கிறது. விளக்கத்தில் குறுக்கு வரலாறு கூறுபடுகின்றது குறுக்கு வரலாறு கூறுபடுகிறது. ஆண்டு கருத்துக்கு வருகைக் கூறுபடுகிறது. ஆண்டு கருத்துக்கு வருகைக் கூறுபடுகிறது குறுக்கு வரலாறு கூறுபடுகிறது. ஆண்டு கருத்துக்கு வருகைக் கூறுபடுகிறது குறுக்கு வரலாறு கூறுபடுகிறது.

பாராளுக்காகத் தம்முக்குத் தெரியாது போன்ற விளக்கம், அத்துடன் பண்டை வரலாறு கூறுபடுகிறது. (v. m) என்ற ஆறு / எண்ணிப்பு கூறுக்குத் தம்முக்குத் தெரியாது போன்ற விளக்கம், அத்துடன் பண்டை வரலாறு கூறுபடுகிறது. என்றால் என்றால் என்றால்? என்றால் என்றால்?

பனிராகம் காண்பது எள்ளது:

நூற்றாண்டு, அறிக்கட்டுப்படம், கட்டிடக்கலை, ஆய்வகத் மையமாக, சிற்றகால காலம், வரலாறு பாணியல்.
கட்டளைக் கலைகள்

அடுத்த கலை 'அறிவு உருண்டு' வரும் நூற்றாண்டில். புராணத்தில் ஆராய்ச்சி மற்றும் தொல்லியல் காலமிட்ட. அறிவு உருண்டு
கலைகள் வரும் நூற்றாண்ட் போன்று பச்சைக் கம்பிகளின்
அறிவு வரும் நூற்றாண்டில் தம்மை தம்மை தம்மை புரை
இயற்கையான வரும் நூற்றாண்டின் ஆண்டு ஆண்டு

சமய இயற்கையான கலைகள்?

• அறிவியல் பரவலாய புரவ அலாம்.
• புரவக்கு புரவ வரும் நூற்றாண்டில் குழு
முழு வரும் நூற்றாண்டில் இயற்கையான புரவ
• பாரம்பரிக் போர்மை பாரம்பரிய புரவ
முழு வரும் நூற்றாண்டில் நூற்றாண்டில்
• கொன்று போர்மை நூற்றாண்டில் குழு

சமய இயற்கையான கலைகள்?

• முதலை கலந்தவுரைகள் செய்யும் விளம்ப
கருவிகள் - பூச்சியால், செட்டையால்
• நூற்றாண்டில் தொல்லியல் புரவயிறு
• செட்டை காலனித்தூடுக் குழு
• நூற்றாண்டில் செட்டையால் கொன்று
• கொன்று காலனித்தூடு பயிர்
• நூற்றாண்டில் செட்டையால் கொன்று

வெற்றிகள் மற்றும் குழு}

19   சூலை 2017
We will be meeting at the Teacher Resource Centers every Saturday to discuss project ideas. You can join this project on the website – azimpremjifoundationpuducherry.org; Facebook : https://www.facebook.com/groups/Thisaimaani/
A house like this

CBSE, EVS, Class - III, Unit - 18

Lesson objectives:

- Understanding a house as a physical space for shelter, protection from heat, cold, rain, etc.
- Knowing about different materials used for building houses
- Types of houses used for shelter in different geographic locations

Suggested resources:

- Pictures - types of house
- Videos - process of building houses, people who are involved in building the house.
- Data collection sheet - to understand types of houses and materials used in student's locality.

Expected learning outcomes:

- Students will be able to understand types of house, reasons for which houses are different at different locations, materials used, skills required to build a house.

Exploring houses:

Students can be asked to draw houses they have seen. The houses they draw can be colored by them. Based on pictures they have drawn discussion on types of houses can be summarized. Videos or pictures on houses at different places can be shown. Students can be asked to analyze the similarities and differences between the houses they have drawn and what they have seen in the video.

Video of houses around the world: https://www.youtube.com/watch?v=wi-li6hprC

To enable students to think, suggested points to observe could be walls, roofs, structure of the house, materials, climate and reason for house’s architecture etc. The analysis can be displayed on the blackboard.

Data collection on houses in student’s locality:

Students can be assigned the task of observing and collecting data on houses they see in their locality. Questions to aid this exploration could be: types of houses they see, materials used for building that house. Analysis of data collection will help the class to calculate the number of houses in the locality, type of house based on its structure and materials used.

Visiting a construction site and interviewing workers:

Students can be taken to a construction site to understand how a house is built. People at the construction site can be interviewed. Sample interview questions are given below.

What is the type of house that you are building? What is your role in building this house? What
are the steps involved in building a house? What materials are required to build this house? Where are the materials bought from? How long will it take to build this house? What precautions have you taken while at work?

**Summarization of learning**: The class has been involved in multiple activities so far. So it will be beneficial if the teacher summarizes what has been learned. Teacher need not explain what students have done but encourage students to share what they have understood so far about types of house, materials used, people needed to build a house, type of houses at different places, reasons for differences in structure of the building etc. Use drawings they have made, pictures and videos that were shown to aid in recalling learning.

**Project Ainilagal : Interacting with students in other states**

Discussions activities would have helped students in developing their understanding about houses around them and houses in other states. This learning can be further enhanced by organizing interaction with students in other states of our country. This interaction will help our students to further enrich their understanding on houses, geographies and the life styles of other people.

A letter can be written to students in other states. The letter our kids write needs to start with self-introduction, small description about thier family and house, and the reason according to you why your house is built in a particular way and will include questions about the addresssee’s house.

Questions to students of other states: What type of house are you living in, How big is the house, How many rooms are there, Types of rooms in your house, What is the climate in your place, Is your neighbor’s house nearby, How long do you take to travel to school, Where does your house get water from. These are some questions that can be asked; we could ask for more questions based on the interest of the students.

**Summarization and discussion of learning**: The class can have a discussion on similarities and differences they observed while interacting with other state’s students. Some specific points that can be used for summarization are: points of difference you see, description of the houses you have seen, description of the weather and local conditions, deducing why these houses are built like that, What would happen if the desert house was made in a mountain area, find out more about the geography and the culture of the place and connect it back to its houses. Students can also share some interesting aspects that they have liked about the houses they saw when they interacted with others.

**Project output possibilities**:

Posters or Picture album: Posters can be made on these themes- types of roof, types of wall, materials used for building different houses etc. OR a poster of a single house and description of the characteristics of roof, wall, flooring etc. A pie chart or a bar diagram on types of houses, materials used can help to understand the distribution of houses.
Eating together
CBSE, EVS, Class - IV, Chapter- 20

Objectives:

- Understanding cultural diversity in food associated with festivals.
- To understand the different kinds of food and food related festivals in other states.

Group discussion: The first stage of the project could be a discussion with the children on the different kinds of foods and festivals related to food. This discussion would reveal their prior knowledge. The discussion could revolve around the types of food, timing of intake, types of festivals, rituals involved in each festivals, time of festivals, special food prepared for festivals etc.

This discussion would help students prepare themselves for their interaction with the students from other states. Students can be split in groups and each group can be asked to write about a particular festival of their locality.

Letter Writing: Students can be encouraged to write letters to students from other states on festivals they celebrate locally. The letter needs to include a self-introduction, a short description about themselves, their place of residence and a few interesting facts about the place followed by a short write-up about the festival of their interest. While concluding, students can ask specific questions they would like to know about festivals in other states.

Below mentioned are some indicative questions to aid the discussion in the classroom. Teachers need to encourage students to develop and write their own questions.

Knowing about your food.
1. Name some of the food items in your state? Which among those are your staple food?
2. Which food item do you like the most?
3. How is the food cooked in you place?
4. What are the food crops commonly grown in your state?
5. Have you eat south Indian foods? What are some south India food items you have eaten?
6. When do you eat together? Do you like to eat together?

About meal at school.
1. What are the meal timings in your school?
2. Does the school provide you with food or do you bring food from home?
3. What are different items that are served in the meal?
4. Who serves the food?
5. Does your teacher eat with you?

Festivals at you place:
1. What are the festivals celebrated in your state?
2. How are these festivals celebrated?
3. Are there food related festivals celebrated in your state? If yes, can you tell me something about it?
4. What are some of the special dishes that are
cooked during festivals? How are they cooked?

5. How do you like festivals at your place?

As the students engage in the discussion, they would come up with many more interesting questions. Encourage children to think out of the box.

Organizing a community lunch in school:
Ask the children to prepare some food and get it in school and arrange community lunch. They should be aware of the name of the food item, its ingredients and method of preparation.

Outcome possibilities:

1. Posters depicting:
   a. Different kinds of food items and their ingredients.
   b. One festival/many festivals

2. Collecting pictures and making an album of:
   a. Different kinds of foods
   b. Different kinds of festival in our state and other states in India.

We will be meeting at the Teacher Resource Centers every Saturday to discuss project ideas. You can join this project on the website – azimpremjifoundationpuducherry.org; Facebook: https://www.facebook.com/groups/Thisaimaani/

M. Ramakrishnan
PST, GPS
Sulthanpet
What makes a good soap?

Samacheer, Science, Class VI, Chapter 3, Term - 3

Soaps and other cleaning agents help remove dirt or stains from our bodies, clothes and other objects. All soaps do not have the same characteristics. Some are harsh on the skin while others are mild; they have different fragrances, some remove dirt better, some leave scum in hard water etc.

Who discovered soap? According to the Romans, soap gets its name from Mount Sapo. In olden days, animals were sacrificed in Mount Sapo. It is said that rain would wash down through the ashes and burnt animal fat from Mount Sapo onto the banks of the River Tiber. The local women who washed their clothing noticed that this clay mixture made their wash cleaner. This was the first kind of soap.

This project will have two parts to it. The first part is to carry out market research to find the characteristics of a good bar-soap. This is to find out what consumers want so as to can design a soap to meet their needs. The second part of the project is to test for the effectiveness of the soap by comparing the characteristics of two soaps.

Part A: Market Research :

List of cleaners - Think about your kitchen, bathroom and storage areas and, in one minute, list at least five different types of household cleaners. Combine the list with those of the other students in your group and describe each type of cleaner. Organize them under different categories. Some categories to consider might include shampoos, liquid soap, hand soap, dish soap, laundry soap etc.

Qualities of the soap - List the qualities you look for in a bar-soap. Decide which of these are most important. Using your list of important qualities, write a survey (5-10 questions) to discover what features other people think are most important in a bar-soap. You will need to get five people to answer your survey.

Organize findings - Combine your survey results with the results of the other members of your group. Organize the responses and decide on the qualities of a bar-soap that are most important to consumers, including yourselves. Discuss the qualities and make some preliminary decisions on what you will design into your own bar-soap recipe.

Part B: Testing the Effectiveness of a Bar-Soap

Choose - Choose one quality that you think you can measure in different bars of soap to help determine a bar-soap's effectiveness. One example may be how much time it requires for a piece of each bar-soap to dissolve in water, if you think that affects the cleaning ability of the soap.

Invent - Brainstorm ideas with your group and write down some possibilities for tests you could do. Invent a procedure that you will use to test the effectiveness of soaps, and write down general notes on the steps of your procedure.

Test - Perform the test and note any modifications of the procedure. Use your test to compare two commercially available bar-soaps.

How Do You Clean Dirty Laundry?
Samacheer, Science Class VI

Type of Patterns

There are different types of dirt. To design a recipe for a soap that will clean several different kinds of dirt, we need to know how soaps clean. Soap contains a chemical that has one part that is polar (hydrophilic); this part has great affinity for water. The other part is non-polar (hydrophobic); this part has an aversion to water molecules. The polar part of the soap cleans the dirt made up of polar substances, while the non-polar part of the soap cleans the dirt made up of non-polar substances. That is what makes soap such a great cleaner.

This project is on the science of cleaning. Through this, students will work to understand which kind of cleaning agent works best to remove what kind of dirt.

Types of Dirt - Provide the class with the following types of dirt adding any others.

- dirt (potting soil)
- grease
- coffee or tea
- grass or other ground-up plants
- grape juice
- ketchup or mustard
- markers (non-permanent)
- charcoal

Procedure - Put about a teaspoon (5 mL) of one of the dirt types in the center of a square of white cloth. Fold the cloth and rub the substance into the cloth. Make sure that there is dirt over the entire cloth. Open and cut the cloth into six equal pieces; you need to have dirt on each piece. Repeat this step using a new cloth for each of the additional dirt assigned to your group.

- Take a paper for each dirt sample you are studying on each
- The first box should have your group’s name and dirt you are studying.
- The second box should be labeled Control.
- The next five boxes should be labeled with
For each type of dirt, set aside one of the six pieces of cloth as the control. With the other five pieces, try to rinse the dirt out of each cloth using the following cleaning agents (or combination) and then allow them to dry:

- water
- kerosene
- first kerosene, then water
- powdered laundry detergent
- bar soap

Place the dried cloth pieces on the paper you have labeled. In the summary rectangle, list the cloths in order of cleanest to dirtiest.

Note - When you have finished with your cloth pieces, gather all the pieces that were rinsed in kerosene and wash them out using detergent. Rags or other materials with kerosene on them can very easily catch fire, even when it seems that there should be no danger: so take care. The detergent will enable water to wash the kerosene out of the fabric.

Evaluate - Pool your class data. Then as a class, discuss which cleaning agents worked best and worst for various dirt samples. Are there different categories of dirt that are cleaned better by different agents? Write down the class consensus in your book.

Cement is a mixture of calcium silicates and aluminates which when treated with water becomes a hard substance. This property of cement makes it useful in joining strong objects like bricks, stones, metals etc. During setting of cement, both physical and chemical changes take place.

When cement is mixed with sand and water to form a paste, this is called mortar. When small stones are added to a mixture of cement, sand and water, this is called concrete. In this project, students are going to test the effect of time on setting mortar.

**Effect of time on setting of cement mortar.**

Time has an important role on the strength developed by cement mortar. When a cement sand paste in the ratio 1:3 in water is allowed to dry, the strength of the solid mass keeps on increasing with increase in the time given for setting. It acquires nearly full strength in 28 days.

**Aim:** To study the setting of mixtures of cement with sand, lime and fly-ash with respect to time and strength.

**Requirements:** Beakers, glass rod, weights, small wooden boxes or empty match boxes. Lime, pit sand, river sand, cement, fly-ash, rice husk.

**Procedure**

1. Prepare mixtures of the various compositions as given in the following observation table.

2. Take each of the mixtures in different beakers and prepare their pastes by adding minimum quantity of water.

3. Take 9 empty match-box inner cases and mark them from 1 to 9.

4. Fill three cases with paste of each composition
   a. Spray water now and then so that they remain moist all the time.
   b. After three days take out one slab of each composition and test for its strength by the method described in previous experiment.
   c. Similarly, take out a set of three slabs after 7 days and then after 30 days and test for their strengths.

**Reference:**
http://projects.icbse.com/chemistry-329
An object is said to be biodegradable, when little tiny microorganisms in the earth can break the object apart and turn it into soil. It looks like the thing disappears, but it just becomes part of the soil. Take a diaper for example... how many years do you think it takes for a disposable diaper to biodegrade? Answer: 500-600 YEARS!

Students will investigate their own trash consumption and become aware of how improperly handled trash impacts the environment. In addition, students will comprehend the difference between types of trash (biodegradable vs. non-biodegradable) and their effects on environment.

Make students to check how long it takes for the following items to degrade (days, weeks, months, years).

<table>
<thead>
<tr>
<th>ITEM</th>
<th>TIME THOUGHT TO DEGRADE</th>
<th>TIME ACTUALLY TAKEN TO DEGRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange peels</td>
<td>6 months</td>
<td>200-500 years</td>
</tr>
<tr>
<td>Newspaper</td>
<td>6 weeks</td>
<td>1-3 years</td>
</tr>
<tr>
<td>Glass</td>
<td>1 million years</td>
<td></td>
</tr>
</tbody>
</table>

Group 1: Orange or banana peels, newspaper, parts of notebooks/ textbooks, green wastes
Group 2: Pieces of cloth, leather shoes, polythene/ plastic bags, broken glass, aluminium wrappers, and old shoes.

1. Divide the contents of each group into two separate heaps. Label them as A, B, C and D. Put all the four heaps in separate pits and cover them with soil.
2. Remove the soil after four days and observe the changes in the garbage. A black colour and no foul smell indicates that rotting of garbage is complete (can use it as a manure).
3. Put the heaps again in the pits and cover with the soil. Observe again after every two days and note your observations as suggested.
4. Did the garbage: [Enter options in the columns based on your observations.

A. Rot completely without any smell?
B. Partially rot?
C. Almost rot with bad smell?
D. No change?

<table>
<thead>
<tr>
<th>GARBAGE HEAP</th>
<th>AFTER 4 DAYS</th>
<th>AFTER 6 DAYS</th>
<th>AFTER 2 WEEKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Follow Up Discussion:

1. What non-biodegradable items that you use could be replaced with biodegradable ones?

2. Non-biodegradable items could you live without in your life?

References:


2. NCERT TEXTBOOK- CHAPTER 16

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Oil Spills

Samacheer, Science, Class - VI, Chapter - 2

Students should understand that motor oil comes from petroleum (a non-renewable resource) and need to know that to keep a car in good running order, oil must be used to lubricate hot moving parts and that it must be changed on a regular basis.

While some motor oil is disposed of properly and is recycled, much is dumped into storm drains, onto soil in vacant lots and into trashcans. They need to know that when improperly disposed of, oil persists in the environment and can have negative health effects.

Through this project, students will understand how motor oil reacts with water, soil, sand, rocks and plants and how its disposal can affect the environment.

MATERIALS:
1. Motor oil in 35mm film canisters
2. Plastic spoons
3. Small plastic bags jars of water with lids
4. Toothpicks or straws
5. Ceramic bowls containing soil
6. Small plants in pots
7. Feathers
8. Plastic containers holding a thin layer of sand and small stones

Experiment 1
- Add a teaspoonful of motor oil to the jar containing the water, using a disposable plastic spoon and shake the jars with the caps tightly closed.
- Observe the jar contents, record observations. Set the jars aside and record observations on the following day, but without shaking the jars again.
- Analyse: Do oil and water dissolve into one another? Does time cause oil to dissolve in the water?

Experiment 2
- Obtain a ceramic bowl containing soil and carefully dribble two tablespoons of oil over the soil surface, using the disposable spoon. Record the observations.
- The next day, find an area of soil that contains oil and carefully lift it up using a straw or toothpick. Examine and record the observations.
- Analyse: What happens to the areas that contain oil?
**Experiment 3**

- Obtain a small plant or seedling in a pot and add a tablespoon of motor oil to the topsoil, using the disposable spoon. Plants should then be lightly watered.
- Each time plants are watered, add another tablespoon of motor oil to the soil.
- Examine the seedling each day of a week and record observations.
- Analyse: What has happened to the seedling as it has been exposed to motor oil?

**Experiment 4**

- Obtain a few feathers and carefully dip the feathers into a clean jar of water. Observe the behaviour of the water on the feather and record the observations.
- Dip the ends of several feathers, one at a time, into the motor oil container. Record the observations.
- Then dip oily feathers into the clean water, and record the observations.
- Analyse: In a normal feather, does water cause the feather to absorb water and get wet? In a feather exposed to oil, what happens to the individual parts of the feather? Does the oil on the feather wash off after being `rinsed in clean water? Will it ever?

**Experiment 5**

- Obtain a plastic shoebox containing a thin layer of sand and pebbles. Carefully dribble two tablespoons of motor oil over them.
- Attempt to rinse the oil off several times with clean water in their jars and record the observations.
- Analyse: Does the oil stick to the sand and rocks after rinsing? Will it ever rinse off?

**Follow-Up:** Students can discuss the potential effects of a major off-shore spill on beaches, birds, plants, fish and other ocean life.

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Calorie content of food

Samacheer, Science, Class - VII, Chapter - 3, Term - 3

Objective:
To determine the amount of stored energy in food items using Calorimeter

Introduction:
Food items contain energy. From the energy stored in the food we eat, we are able to work and perform other activities. The energy values of food are measured by the Calorie, with a capital C. A Calorie is equal to 1,000 calories or 1 kilocalorie. A calorie is the amount of heat required to raise the temperature of 1 gram of water to 1 degree Celsius.

We can know the amount of Calories in a food present on the Nutrition Facts panel. Calorimetry is used to quantify the heat produced in a combustion reaction using a bomb calorimeter. In this project, a piece of food is combusted and the energy released is used to heat a known quantity of water. The amount of energy released in the food is determined from the change in temperature of water.

Materials: Aluminium Can, Ring Stand, Thermometer, Food Samples, Water, Matches.

Procedure:
1. Fill the Aluminium can with 25mL of water and determine the mass of water using density of water
2. Place the food sample upward on the paper clip. Measure food and its holder before and after burning
3. Insert the thermometer in the can so as it does not touch the bottom of the can
4. Note the initial temperature of the water
5. Light the food sample to heat the water in the can. Gently stir the water periodically with the thermometer
6. Record the highest temperature observed.

Table:

<table>
<thead>
<tr>
<th>Food item</th>
<th>Water Temperature(°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial</td>
</tr>
<tr>
<td>Popcorn</td>
<td></td>
</tr>
<tr>
<td>Cashew</td>
<td></td>
</tr>
<tr>
<td>Peanut</td>
<td></td>
</tr>
<tr>
<td>Almond</td>
<td></td>
</tr>
</tbody>
</table>

Calorie Calculation:
• \( Q_w = (m)(C)(\Delta T) \)
• \( Q_w \) = Heat gained by the water in calories (cal)
• \( C \) = Specific heat capacity of water (1 calorie/g°C)
• \( m \) = Mass of the water (grams)
• \( \Delta T \) = Change in water temperature (°C).

Bio Diversity - Who Likes Flowers?

Samacheer, Science, Class - VIII , Chapter - 1, Term - 3

The Big Picture

The idea of this experiment is to attract pollinator insects with cultivated or artificial flowers. As various species of pollinators have co-evolved with species of flowering plants, the insects have developed preferences for color, scent and shape. We'll take advantage of those preferences and see if we can find patterns in visiting insects.

Preparations

Weather is an important consideration for this experiment. Pollinators only fly when there's no rain, and it is warm enough and not too windy. You'll need some flexibility to work around rainy days.

You'll need a lot of flowers, either cultivated flowering plants, or artificial ones. If you use living flowers, you'll need a place to put them out on the school grounds, either planted or in pots or flats. The point of having live plants out on the grounds the whole time is to allow insects and other animals to colonize the plants (e.g. aphids, ants, spiders, ladybird beetles). The other option is to make artificial flowers. These can be very simple: flat disks or inverted cones of construction paper will be enough to attract insects, they should be at least 8 cm across. You'll want at least 7 flowers per student, with colors and shapes depending on their questions. More flowers will always be better.

This experiment will require students to identify a number of flying insects, visually (very low accuracy) or by catching them and examining them up close (much better). Some of the pollinators (bees, wasps) that will come can sting, and some of the flies that will come are bee-mimics, with bright yellow and black stripes. Students can handle these insects safely in nets, but you should encourage them to work on quiet observation skills, so catching them will not always be necessary. Over enthusiastic netters are liable to wipe out flowers.

(Student who are allergic to bee-stings should not be allowed to catch or handle any flying insects).

Materials

Whether living or artificial, you'll probably need more than one color of flower:

The three best options are blue/dark purple, red/pink, and yellow/white.

In addition to the flowers, insect nets and the other collecting gear.

For "nectar," a solution made from one part sugar or honey to 6 parts warm water will do. If you want to vary it, this concentration can be halved or doubled.

What to Expect

We're not sure what will be flying during the time of the experiment, but bumblebees, other small solitary bees, honeybees, many kinds of flies (including some bee-mimics), small stingless wasps, ants (crawling up from the ground) and butterflies are all possible.

Bees tend to favor blue/purple and yellow flowers, and aren't sensitive to red. Flies are
attracted to white, yellow, or pink, but some will land on any flower. Some butterflies also are broadminded, but many prefer yellow or blue flowers.

Setting Up Our Bio Diversity Project - Who likes flowers?

1. Flowers are loved by many species of invertebrates for the sweet nectar inside. While they are eating, it is possible to get a peek at many aspects of their lives. These include what they eat, what colors they like, what other invertebrates they associate with, what they are scared of, exactly what they look like and much more. Your class will be looking at how real or student-made flowers affect the abundance and richness of the animals in the schoolyard.

2. Read the following experimental questions that match your experimental setting.

   a) Is there a higher abundance of animals attracted to paper flowers with “nectar” than paper without “nectar”? (Paper flowers only)

   b) Is there a higher abundance of animals attracted to paper flowers with a “nectar” of high sugar concentration compared to one with low sugar concentration? (Paper flowers only)

   c) Does the sugar concentration of the “nectar” affect the richness of animals visiting? (Paper flowers only)

   d) Does the size of the flower patch affect the abundance of animals seen?

   e) Is there a difference in the richness of animals attracted to flat versus funnel shaped flowers?

   f) Does the shape of the flowers (flat versus funnel shaped) affect the abundance of animals seen?

   g) Does the amount of time the plant is in the schoolyard affect the richness of animals that visit the flowers?

   h) Is the abundance of animals affected by the kind of plant you are observing?

3. Your experimental question is one of two types. Circle A or B for your question below.

   • Does your experimental question look at changes over time?

   • Does your experimental question compare two set-ups?

   If you chose A, answer the questions in A below. If you chose B, answer those questions.

<table>
<thead>
<tr>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ How many times will you collect data?</td>
</tr>
<tr>
<td>✓ When will you collect data?</td>
</tr>
<tr>
<td>✓ What materials do you need to set up the experiment?</td>
</tr>
<tr>
<td>✓ Where will you set up your experiment?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ What will you compare?</td>
</tr>
<tr>
<td>✓ What is the goal of making this comparison?</td>
</tr>
<tr>
<td>✓ What materials do you need to set up the experiment?</td>
</tr>
<tr>
<td>✓ Where will you set up this comparison?</td>
</tr>
</tbody>
</table>

4. You will be either counting numbers of animals (Abundance) or identifying kinds of animals (Richness). Circle the type of data you will be collecting:

   • Abundance: Counting numbers of animals

   • Richness: Identifying kinds of animals
<table>
<thead>
<tr>
<th>Abundance</th>
<th>Richness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What will you count?</td>
<td>1. What type of things will you identify?</td>
</tr>
<tr>
<td>2. What is the goal of counting?</td>
<td>2. What is the goal of identifying?</td>
</tr>
<tr>
<td>3. What equipment will you use?</td>
<td>3. What equipment will help you?</td>
</tr>
<tr>
<td>4. How will you record the data that you collect?</td>
<td>4. When you identify something, how will you record that information?</td>
</tr>
<tr>
<td>5. In addition to counting, you will need to identify the animals that you are counting.</td>
<td>5. In addition to identifying animals, you will need to count them. What equipment will you use to do this?</td>
</tr>
<tr>
<td>6. What equipment will you use to do this?</td>
<td></td>
</tr>
</tbody>
</table>


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A little Turtle

CBSE, English, Class - I, Unit 8

1. Teachers show the pictures of (turtle, fish, dog and bird). Children are asked to observe and discuss their features in whole group. They discuss where they live, what they eat, their physical appearance etc. Children are divided into four groups and each group is given a worksheet (attached below). Let them discuss in their group about the creature that they have on their worksheet and complete the worksheet. After completing the worksheet one of the group members presents the work done in their worksheet.

NAME OF THE GROUP:________________________

Complete the figure and color it, discuss in your group and complete the description below present your work to the class.
2. Role play of Tiger and Mosquito story. Children’s faces could be painted instead of masks. Children enjoy this and are able to tell their dialogues with more confidence. Children could be encouraged to use simple words in English while doing the role play.

3. Initiate a discussion with children to write/say what they do well, help them to write them on the poster shown below. Make a chart/poster. Children can draw a picture of any activities like running, drawing etc. or paste the picture in the space provided and then write.

a. My name is A Ashwanth.

b. I am good in drawing

a. My name is Mohan

b. I am good in ________
Musical instruments and their sounds

Students could be asked to make musical instruments by using waste products like coconut shells, empty paint tins etc. Also they can draw different musical instruments which they have seen in festival, functions or in other areas and write or draw where each has been played. Students can sing using these instruments. Children can clap their hands, tap and drum their tiffin boxes, benches etc. These songs can be recorded and made into a music album.

(refer - http://www.redtedart.com/musical-instrument-crafts-for-kids/).

Story video – secondary sources

https://www.youtube.com/watch?v=O_I-j1kktgw

https://www.youtube.com/watch?v=K5gr-A03RFM

Animals and its sounds

Role play on animal sounds - Children choose one animal and make the animal sound and recreate the narrated story through role play.

Conversation and Experience sharing

Grandparents from the village can be invited to the school and asked to share their experiences/struggles in raising their children. Children can become aware of the struggles parents are making in their daily lives to raise the family.

Themes: Caring for plants and trees

Role play: Students create their story on The Giving tree. They discuss with themselves and write the dialogue. Also the teacher could draw the outline of a huge tree on a chart paper and a child can take the role of a tree and they could go to other classes in the school and talk about the benefits of the tree.

Slogan writing: Students writes slogan on protecting environment and pastes the strips in the school. For example - Save trees, save nature

Posters: Students draw pictures and makes posters. They could write in their own words the advantages of the tree in simple words
Money
CBSE, Maths, Class - I, Chapter - 12

Project ideas

1) Collection of coins and currencies and pasting them in their scrap books

2) Tracing on the coins using color pencils (identification of the coins)

3) How much does it cost? (or) Guess the price. Students collect/draw/paste the picture of the objects in the corresponding amount

4) Shopping fair
   a. Conducting a shopping game in the classroom. Objects with price tag will be placed. Students have to buy things using the amount they have saved in their bag.

Outcome: Putting different denominations of the amount

b. Some objects made by the students in the fair are sold to the visitors and with that amount they buy something for their classroom

Outcome: Appreciating the value of money

5) Pasting / drawing different denomination of the amount in a chart.

R. Gomathy,
P.S.T, Savarirayalu
GPS, Pondicherry
Addition and Subtraction

CBSE, Maths, Class -II, Chapter -

1. **Throw and Catch**: Each child has 2 chances to throw a ball in the air and catch it – first with the right hand and then with the left hand. They keep count of the number of times they catch it without dropping it. They note the number on the board and then start with the other hand. After they try both hands, they add up the total, for instance 24 + 12 = 36.

2. **Find the total strength**: Students are asked to collect the strength of each classroom in their school. They then make a tabular column as below.

<table>
<thead>
<tr>
<th>Class</th>
<th>Total no of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>08</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
</tr>
</tbody>
</table>

   Total of I and II = 10 + 8,

   Total of II and III = 8 + 15 and so on.

   Then the students are asked to take away each classroom’s strength from the total strength of the school. For example

   Total no of students in school = 91

   Total no of students in class I = 10

   Total = 81

3. **Sum of Today and Yesterday**: This is a one week project. Students should find the sum of the dates of today and yesterday.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Date of Today</th>
<th>Date of yesterday</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24</td>
<td>23</td>
<td>47</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
<td>24</td>
<td>49</td>
</tr>
<tr>
<td>3</td>
<td>26</td>
<td>25</td>
<td>51</td>
</tr>
</tbody>
</table>

   Similar kind of activities can be used for subtraction.

4. **Measure Your Height**: Students measure length (height) of the head, neck, upper body, lower body.

   Step 1: Draw a sketch of the whole body.

   Step 2: Mention each length according to its respective parts.

   Step 3: Add sum of two lengths of parts and add the sum to the next part and so on.

   Step 4: Finally they arrive at their height.

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Give and take
CBSE, Maths, Class -II, Chapter - 12

Concepts – Counting, Regrouping, Addition

Teaching and learning processes:

Based on prior knowledge: Teacher asks the students to write their name and their friend’s name in their notebook. Students are asked to count the total number of alphabet letters in both names. This activity is done to check the prior knowledge of numbers and single digit addition.

Currency for Place value: Teacher gives a few 1 rupee coins to students and asks them to note down the number of coins given to them. Teacher puts a condition to students to collect one 10 rupee note for every ten coins. Students exchange their coins for 10 rupee notes and are asked to add the total of what they have got. This activity will help students to understand that, even if the number of coins/notes differs, the value doesn’t change.

Coin and Rupee: Teacher divides the class into groups (4 students in a group): two students as ten’s and two students as one’s. Give play money of 10 rupees to ten’s group and 1 rupee coins to one’s group. If one’s group have more than 10 one rupee coins they can exchange coins for one 10 rupee note and give it to ten’s group. Finally students count how many 1 rupee coins and 10 rupee notes they have and write the figure in the appropriate box in the board.

Rods and Numbers: Students use number rod for regrouping addition.

\[
\begin{align*}
1 & \quad 7 \\
2 & \quad 5 \\
\hline
\end{align*}
\]

Student keeps 7 and 5 single rods in one’s place and 1 and 2 ten rods in ten’s place. Students then count all the single rods (7+5=12). 10 single rods of 12 are exchanged with 1 ten rod. This is kept in the tens place. Total of tens rod (4) is taken and written in the tens place.

Throw Dice and know the Number: Students sit in pairs and throw dice. One student gets 5 and another student gets 2. They write 52 as first addend and reverse the number 52 as 25 which is taken as second addend. Then the players add the numbers to find the total sum. Players continue to play for a designated time. When the time is up, see which group, having completed the most problems correctly, is the winner.

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Pattern
CBSE, Maths, Class - I & II

Type of Patterns

- **Repeating pattern**: Sequence i.e. arranging with line and shapes, arranging the objects alternatively

- **Growing pattern**: Patterns increasing or decreasing i.e. Skip counting (using Numbers), increasing or decreasing (Numbers or Objects)

Repeating Pattern: using Lines and Shapes (arranging) in drawing & coloring methods

1. Games of making pattern with the objects present in the classroom. E.g.: Pencil, rubber, sharpener, chalk piece, leaves, blocks, books, etc.

2. Repeating & Alternative pattern i.e. using alphabets for example, (1) AAB AAB, using alphabets is a good activity because children understand letters as images too, so using alphabets will make for different combinations among the children

3. Arranging the objects in I different angles (up, down, front/back)

4. Paper cutting (repeating) & Paper folding: We can give A4 sheets to children and ask them to cut these as they like; after a few cuts we can ask them to open the sheets and look. This will help them to understand stand patter (later in grade 3 and 4, we could connect symmetry )

5. Thumb printing/footprints : we can ask children to make thumb printing and make any pattern, Last year I tried this so I know it would be good project for seeing the children’s work.

Growing Patterns with objects:

1. Games with tamarind seed, blocks, beads, leaves, sticks (Increasing): children can take few seeds and show them as just one, two, and three, etc. in arrangement of vertical, horizontal, slanting. When students do this there will be different combinations, for example 1, 2, 3.. or 3, 5, 7: these are just a few combinations.

2. Pasting/sticky with bindhis / stickers (increasing): students can get a few bindhis and can create colorful patterns.

3. Completing the shapes with matchsticks

![Example of pattern with matchsticks]

Growing pattern with Numbers

4. Clapping Game(1,2,3 1,2,3 1,2,3)

5. Skip counting (by 2's, 3’s,4’s,5’s,10’s) arranging

6. Complete the box (skip counting )

![Example of skip counting]

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Lesson Ideas

1. அழிப்பான பாண்டியன் பக்தியுடன் பிடிக்க
2. அழிப்பான புயல்
3. மூடுத் துத்தியப்/ கால்பு/ தொட்டுத் புயல்

மரபு ஆசிரியர்

மரபு ஆசிரியர்

1. இருவால் மாணவர்களுக்கு கையேட்டுப் பாடத்தில்
2. இருவால் மாணவர்களுக்கு கையேட்டு பாடத்தில்

3. என்மை புற்றுண்மை/ கால்பு/ தொட்டுத் புயல்

தமிழ்மொழியில் பதிவு

இருவால் மாணவர்களுக்கு கையேட்டு பாடத்தில்

1. இருவால் மாணவர்களுக்கு கையேட்டு பாடத்தில்
2. இருவால் மாணவர்களுக்கு கையேட்டு பாடத்தில்

மனித அறிஞியல்

அதிபோதமான பாடல் / பாடல்க்கணிறడிக்க.

அதிபோதமான பாடல் / பாடல்க்கணிறது

1. இருவால் மாணவர்களுக்கு கையேட்டு பாடத்தில்
2. இருவால் மாணவர்களுக்கு கையேட்டு பாடத்தில்

மேலும் பல செய்முறை அளிக்கப்

அதிபோதமான பாடல் / பாடல்க்கணிறது

1. இருவால் மாணவர்களுக்கு கையேட்டு பாடத்தில்
2. இருவால் மாணவர்களுக்கு கையேட்டு பாடத்தில்

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1. இருவால் மாணவர்களுக்கு கையேட்டு பாடத்தில்
2. இருவால் மாணவர்களுக்கு கையேட்டு பாடத்தில்
அதிகாரத்து புகழ்படுத்தல்:

• இந்தப் பட்டடம் பயணிகள் பேசியது விளக்கத்தால் கதாமல் பேசலாம் குறிப்பிட்டும். அவற்றுடன் வைக்கிற நிலையை தரும்.

• என் ஆக்கிரமியம் எங்கேயும் பிடிக்க வேண்ட? பிள்ளையருக்கு வாய்ந்த? - என்று தீர்வுசெய்து பயன்படுத்துவதை இறுக்கும்.

• என் கலந்த ஆக்கிரமியம் வடிவத்திற்கு செருங்கு விளக்கத்தால் தந்தது இப்பதிவுப் பயன்படுத்தும். முறுக்காக்கால் வழிபாடுகள் பிள்ளையார்.

• இந்திய குடியேற்றம் சுத்த குடியேற்றம் காலின் காரணங்கள் ஆகிய செயற்கையுடன் விளக்கத்தால் (2ம்) பிள்ளை வாய்ந்த நிலை, முதலில் கிளை வாய்ந்த, கூடிய குழந்தை மற்றும் பெண் வாய்ந்த

• பாண்டிய குழந்தை காலகால் பிள்ளை வாய்ந்த

• கலந்தராணிய சுருக்க சிறுத்த ஐதரவு செய்ய வேண்டும் மற்றும் நல்லாக வேலை செய்வது வேண்டும்.

• பாண்டிய குழந்தை விளக்கத்தால் ஆராய்ச்சியை செய்ய வேண்டும்.

• பாண்டிய /சுருக்க ஐதரவினுள் அவர்களுக்கு வேண்டும்.
The Little Bully

CBSE, English, Class - V, Unit - 8

Major Concept:

- The evils of bullying
- Friendship and its importance
- Familiarity with the animal world

Engage:

Task – I (Group Discussion)

- Teacher asks children for experiences of someone who has bullied them. Teacher takes the vocabulary from children and puts it on the board. These words can help them read the lesson later.
- The teacher makes the students list some of their good and bad habits:
- Children could be asked to discuss what makes them like someone (friendly / social behaviors). Teacher can write on the board “I like it when my friend...”; and what makes them not like someone (unfriendly/unsocial behaviors) “I don’t like it when my friend...” and children can give an oral answer and write on the board.

Some examples of expected answers from children

E.g.
- I like it when my friend plays with me.
- I like it when he helps me do homework.
- I don’t like it when my friend beats me.
- I don’t like it when my friend doesn’t help me.

Task – II

A small video clip will be showed to portray the evils of bullying inside the classroom. Children will understand the ill-effects of bullying each other through the video. Student’s listening skill can be assessed.

Explore:

Narrate the scenes in the story of “The Little Bully”, by using the picture cards and story cards. Students will listen and observes the story and extend their speaking skills by using the picture cards and story sequencing cards.

Explain:

The teacher shows the picture card which contains pictures of some seaside creatures: snail, crab, tortoise and porcupine and asks the students to draw and write few lines about any one of the animals shown in the picture card. They can also express how animals like snails, lobsters, and tortoise protect themselves.

E.g.

Children will say words in Tamil. This can be used to introduce words like shell, claw, nipped, yelled and pincers. Children can also write sentences using these words.

- Snail hides inside the shell.
- Turtle hides inside the shell.
- Tortoise carries its shell.
- Crabs have long claws.

Elaborate:

The teacher makes the students complete the
exercises given in the work sheet. The students will complete the exercise by following the instructions given by the teacher.

Eg: Frame new words by adding -less and -ly at the end of the given word: Children could frame sentences using the words

**Evaluate:**

The teacher makes the students narrate the story by using the story sequencing cards or posters. Narrates the story sequentially by correlating the importance of friendship, the ill effects of bullying each other in the classroom situation. Speaking skill and observation skills are assessed by the teacher.

<table>
<thead>
<tr>
<th>Words</th>
<th>Adjective</th>
<th>Adverb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brightness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Teacher Reflections:

- பட்டியல் பதிலிபில் ஆராய்ச்சி நிகழ்த்துத்து.
- பட்டியல் விளக்கங்கள் பாடல்.
- சித்தான்மார் கல்வி ஆராய்ச்சி
- எழுத்தில் கிளடை வாய்ந்தது

அடையாளம்:

பரண்டியலில் பதிகத் பதிலிபில் குறுக்கு பாடல்
சித்தான்பாதக அருங்காட்சியாக பாதிக்கப்
செய்யவேண்டும்.

"பாதகாரணம் புது குறுக்கு குறுக்கு
சித்தான்பாதக குறுக்கு அருங்காட்சியாக
சித்தான்பாதக குறுக்கு பாதாக நிகழ்த்து
(சித்தான்பாதக)"

"இரண்டில் பாடல் குறுக்கு விளக்காயில் குறுக்கு
சித்தான்பாதக அருங்காட்சியாக
சித்தான்பாதக பாதாக நிகழ்த்து
(சித்தான்பாதக 

குறிப்பிட்டுதல்:

அதுதாய் பரண்டியலில் பதிலிபில் சித்தான்பாதக
குறுக்கு பாடல் குறுக்கு குறுக்கு
சித்தான்பாதக குறுக்கு
சித்தான்பாதக குறுக்கு
சித்தான்பாதக குறுக்கு

இடைவலை:

அதுதாய் பரண்டியலில் அருங்காட்சியாக
சித்தான்பாதக அருங்காட்சியாக
சித்தான்பாதக அருங்காட்சியாக
சித்தான்பாதக அருங்காட்சியாக
சித்தான்பாதக அருங்காட்சியாக

சித்தான்பாதக பாடல்:

பரண்டியலில் விளக்கிய பாடல் மறு
பரண்டியலில் விளக்கிய பாடல்
சித்தான்பாதக விளக்கிய பாடல்
சித்தான்பாதக விளக்கிய பாடல்

குறிப்பிட்டுதல்:

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சித்தான்பாதக விளக்கிய பாடல்
சித்தான்பாதக விளக்கிய பாடல்

குறிப்பிட்டுதல்:

பரண்டியலில் விளக்கிய பாடல் மறு

48 | பதிப்பு 2017
If you have tried a lesson that could inspire other teachers, please send us your notes and classroom photos at facebook: https://www.facebook.com/groups/Thisaimaani/ Whatsapp : 89 40 40 04 48
பயிற்சியாளர் குறிப்பிட்டு வந்தவற்றின் பாட்டு எடுத்துக்காட்டு செய்யுங்கள். பொருள் நிறுவனத்தில் வந்தவற்றின் பாட்டு எடுத்துக்காட்டு செய்யுங்கள். பொருள் நிறுவனத்தில் வந்தவற்றின் பாட்டு எடுத்துக்காட்டு செய்யுங்கள்.

தான் பதிவு ஆய்வு செய்யுங்கள் கூறுவது கூறுவது. கூறுவதும் முதல் இடம்பற்று கூறுவது. கூறுவதும் முதல் இடம்பற்று கூறுவது. கூறுவதும் முதல் இடம்பற்று கூறுவது.

கூறுவதும் முதல் இடம்பற்று கூறுவது கூறுவது. கூறுவதும் முதல் இடம்பற்று கூறுவது.

பின்னர் “அமைப்பார்” செய்யுங்கள் குறிப்பிட்டு வந்தவற்றின் நிலைக்கு பாட்டு எடுத்துக்காட்டு செய்யுங்கள். பாட்டு எடுத்துக்காட்டு செய்யுங்கள் அனைத்து குறிப்பிட்டு வந்தவற்றின் நிலைக்கு பாட்டு எடுத்துக்காட்டு செய்யுங்கள். குறிப்பிட்டு வந்தவற்றின் நிலைக்கு பாட்டு எடுத்துக்காட்டு செய்யுங்கள்.
பிற்கு, பட்டம், கண்காட்சி குறிப்பிட்டு கல்லூரியில் அறிமுகாக்கபட்ட கல்வியாளரின் ஆராய்ச்சி பதிப்பு என்று குறிப்பிட்டுள்ளன. நீங்கள் கல்வியாளர்களை நோக்குவது இருப்பது என்ன என்று நம்பிக்கைகளை காட்டுகள்.

பிற்கு குறிப்பிட்டு அறிமுகிக்கப்பட்டுள்ள தொடர்புப் பாடல்களை பிறப்பிட்டு அறிமுக என்று குறிப்பிட்டுள்ளன. நீர்கள் அறிமுகாக்கப்பட்டுள்ள பாடல்களை நோக்கிய தொடர்புப் பாடல்களை தொடர்விட்டுள்ளன. பாடல்களை நோக்கிய அறிமுக என்று குறிப்பிட்டுள்ளன.

பிற்கு எந்த குறிப்பிட்டு போன்று பொறுப்பிட்டுள்ளது. இது எந்த குறிப்பிட்டு போன்று பொறுப்பிட்டுள்ளது. இது எந்த குறிப்பிட்டு போன்று பொறுப்பிட்டுள்ளது. இது எந்த குறிப்பிட்டு போன்று பொறுப்பிட்டுள்ளது. இது எந்த குறிப்பிட்டு போன்று பொறுப்பிட்டுள்ளது. இது எந்த குறிப்பிட்டு போன்று பொறுப்பிட்டுள்ளது. இது எந்த குறிப்பிட்டு போன்று பொறுப்பிட்டுள்ளது. இது எந்த குறிப்பிட்டு போன்று பொறுப்பிட்டுள்ளது.

If you have tried a lesson that could inspire other teachers, please send us your notes and classroom photos at facebook : https://www.facebook.com/groups/Thisaimaani/ Whatsapp : 89 40 40 04 48
தக்காலம் நம்புவது
சதுர கலை, குழு, அம்பா 4, மகள் 3, படம்

Teacher Reflections

 pillar: I was pleased to see that the students were enjoying the game and were actively participating. The students were able to complete the task effectively within the given time limit. I felt that the game was suitable for the students and helped in reinforcing the concepts they had learned in class.

Pillar 1:

I was pleased to find that the students were actively involved in the game. I was impressed by their ability to work together to complete the task. I felt that the game was a good way to reinforce the concepts we had discussed in class.

Pillar 2:

I was pleased to see that the students were able to complete the task within the given time limit. I was impressed by their ability to work together to complete the task. I felt that the game was a good way to reinforce the concepts we had discussed in class.
கண்ணப் பாதுகாக்கக் கூடியது. கண்ணி போக்குறும்.
அது வரையாக வேகத்தில் முடிவு கிழக்குத் தக்குடன். 
சூழ்வுக்கும் புகழுக்கு.

ஹல்லு
ஹல்ல பூர்த்திக விளக்கினை

ஹல்ல விளக்கினை

மாற்றானப் புரிந்து விளக்கம் புகழும் போது நான்

குறிப்பிட்டு

கையாமது வேல்லையில் தேர்த்துள்ளார் பிறந்து போக்கினை போக்குறும். இது விளக்கினை குறிப்பிட்டுக் கூறிக்கொண்டு நான் செய்யப்பட்டுவிட்டு இருந்தது. அதன் ஆலம் அழைக்கப்படும் குறிப்பிட்டு குறிப்பிட்டு செய்யப்படும் விளக்கங்களின் நுழைவு குறிப்பிட்டு உறுதி விளக்கினை.

பானைந்த தோற்றத்தில் புரிந்து விளக்கினை போக்கினை குறிப்பிட்டு கூறிக்கொண்டு நான் செய்யப்பட்டுவிட்டு இருந்தது. உன்னை குறிப்பிட்டு அக்காலத்தில் விளக்கத்தில் அழைக்கப்படும் விளக்கத்தில் விளக்கம் போக்கினை குறிப்பிட்டு உறுதி விளக்கினை.
பாரசான் கவிக்கையில் அகமக நாகரவை காலத்தில் பாரசான் மரக்குருவியில் தாக்குத் தன்னுடன் மேற்கோள் செய்யும் சிறுகதை காட்டுகிறார்.

அதுடன் காண்க: 'சின் வேலா மார்னா நாக்பழமா கிரணி நாகார் பாரசான் காலத்தில் பாரசான் மரக்குருவியில் தாக்குத் தன்னுடன் மேற்கோள் செய்யும் சிறுகதை காட்டுகிறார்.

அதுடன் காண்க: காலத்தில் கால மரக்குருவில் பாரசான் மரக்குருவில் காண்பெறும் பாரசான் பெரிய சிறுகதை காட்டுகிறார்.

அதன் பின்னர் பதின்முருவள விளக்கமாக பாரசான் மரக்குருவில் பாரசான் மரக்குருவில் காண்பெறும் பாரசான் பெரிய சிறுகதை காட்டுகிறார்.
The Balloon Man

CBSE, English, Class - III, Unit - 5

Themes:
- Sky, Colours, Insects
- Appreciation of natural beauty

Playing with balloons: I brought a packet of brightly coloured balloons and thread to the class and allowed each student to blow one balloon and tie it tightly with a piece of thread. I asked them to leave the balloons and watch them fly up in the breeze. We talked about other things that one could see in the sky including Birds, Butterflies, Clouds, Rainbow, Kite, etc., and their different colours. Each student wrote his/her name on the balloon and hung it in the classroom.

I found out about their ability to write their names correctly and I tested their speaking skills. From these activities, I was able to see the joy and happiness of the children in blowing up the balloons, writing their names on them and flying them high.

I asked each student to write the colour of the balloon they blew up on the blackboard. Example: Blue, Violet, Green, Yellow, Orange, Pink, Brown, Red etc.

All my students were able to write the names of colours correctly without errors.

Reading the poem, vocabulary exercises: At first I read the poem aloud with proper rhythm, stress and pronunciation. On second reading, I made the students repeat after me with expressions and gestures.

Vocabulary building: I wrote the rhyming words of the poem on the blackboard and repeated those words aloud. I made the children underline/highlight rhyming words. This was followed by jumbled words exercises as given below:
- Ploep – People
- Ulbe – Blue

We took words beyond the textbook as well. This was an interesting game for children.

We played a word grouping game. For example:
- NATURE  Sky  Wind
- FOOD  Turnip  Rice
- COLOURS  Green  Yellow
Children were able to learn many new words through this activity.

**Role play:** Students did a role play of a marketplace – there were buyers and sellers and one child acted as a balloon man. Children really enjoyed this market scene.

**Extension activities:** I gave extension activities such as puzzles and crosswords for finding colours (vertically and horizontally) in the maze. I gave a worksheet and asked them to imagine the things they see in the sky, mind map them and draw and colour their images on the sheet. Example: Cloud, Bird, Aeroplane, Helicopter, Kite, Butterfly, Parachute etc.

*If you have tried a lesson that could inspire other teachers, please send us your notes and classroom photos at facebook: [https://www.facebook.com/groups/Thisaimaani/](https://www.facebook.com/groups/Thisaimaani/) Whatsapp : 89 40 40 04 48*
Objective:

i. Know about the daily routine activities in life.

ii. Understand the concept of time by sequencing of events in a day.

iii. Ability to calculate the time duration in terms of earlier and later.

iv. Able to solve simple problems involving time.

Teaching Learning Material: Day and Night chart. Pictures of day to day activities of a child, Sequencing cards for sequencing of events in a day, A simple pendulum (made by the teacher) Beads, Thread, Bindies, Worksheet, ICT resources

‘Day and Night’: This activity was to connect the prior knowledge of the students of the concept of ‘Day and Night’. Teacher prepared a TLM in a cardboard. One side of the cardboard shows Day and the other side shows Night. Teachers also prepared some picture cards of day and night.

Teacher placed the day and night chart in front of the class. She gave picture cards of day and night to the students and asked the students to place them on either side of the chart. She didn’t give any guidance or directions for placing the cards. The children placed the cards themselves. Then teacher asked the students to speak about the activity. How did they place the cards? Students were smart and this activity was easy for them. They are very clear about day and night. Still the teacher posed some question like ‘Why do you call this Day/ Night?’

‘Good morning, Good morning’: Teacher asks the students to sing the rhyme as a daily routine. ‘Good morning, good morning’ https://www.youtube.com/watch?v=aig1ebnm3lo.

Students enjoyed singing the song ‘good morning, good morning’. Once I had shown the video I asked the students to take over the rhyme on their own.

Good morning, good morning,
I wake up in the morning
Good morning, good morning,
I wake up early in the morning……

This is the structure of the rhyme. Then the teacher asked the students to continue the rhyme along with their daily activities such as ‘Brushing teeth, taking bath, praying to god, eating breakfast, going to school, and so on....’ Students sang the rhyme with enjoyment.
Sequencing of Every Day Activities: Teacher gives the picture cards of daily routine activities in the life of children, such as getting up, cleaning, brushing, bathing, having breakfast, going to school, having lunch, coming back from school, playing in the evening, studying, taking dinner and going to bed. Asks the students to sequence the picture cards.

Teacher divided the students into groups. She gave out some cards for sequencing activity. At the beginning they couldn't get the idea of what I was saying. They just spread the cards on the desk. So, I started giving instruction in small groups. I asked some questions like ‘what activity will you do first in the morning?’ Students replied that they will brush their teeth. I asked the children to pick up that card and place it in the first position. Like this I guided them for two more steps. After that they didn’t need me; likewise I guided the other groups. Then the activity picked up. They became immersed in the discussion on placing the cards in order.

They started arranging the cards. There was lots of discussion, difference of opinion and arguments among the children while doing this activity. However they finished it and presented it to me. While visiting the students presentation I noticed some of the cards were misplaced. I asked students about the logic behind the sequence of cards which they reasoned out and thereafter rearranged the sequence. Some of the interesting mistakes I noticed were given below.

Students placed the ‘Returning to home’ card in between the meals card. While preparing the TLM I chose more than two cards for every activity. So for lunch I chose four different cards. I expected the children to place all the four cards one by one. But they kept a ‘returning to home’ card in between ‘the meals’ card so I asked them the reason. Some children said that it was correct. The reason they gave was that every day they would take lunch in the school and after going to home they would eat meals. So, they had kept the card like that. But some children said that it should not come there and changed its place. The girl who had changed the card placed it below ‘the Playing in the evening’ card. Again some children found that it was incorrect. They changed the place and kept it above the ‘Playing in the evening card’. They reasoned that they would first ‘go home’ and only then they would play. I was simply watching all these things, putting question words like ‘How?’ and ‘Why?’ wherever it was needed.
Step 1: Children coming out from school card was arranged in between the meals card.

Step 2: Students correcting the ‘returning home’ card and placing it after the ‘playing in the evening’ card.

Step 3: Children again correcting the ‘returning home’ before playing ‘in the evening’ card.

I had chosen some cards on purpose to see how the children were looking at it and reasoning about them. One of the type of cards is a ‘sunset’ card. Even older children couldn’t say whether it is a sunrise or a sunset. I was very eager to see how the students were justifying it. First, the students placed it below the ‘returning home’ card. When I pointed out that, a girl changed the place and kept it at the top. And again she changed and kept it below the ‘playing in the evening’ card. The reasons she gave for placing the card at the evening were:

- They would not play with their friends in the morning.
- This ‘playing card’ was darker than the other cards.

For these two reasons she was considering the card as a sunset card.

Step 1: placed the sunset card before playing in the evening card.

Step 2: Changing the place of the sunset card to the top.
Step 3: Children placed the ‘sunset’ card after the ‘playing in the evening’ card.

**Stringing the Beads:** Teacher divides the students into three groups and gives an activity. Teacher gave thread to each group and beads of same size and same number. Asked the students to string the beads.

When I said ‘start’ the students eagerly started stringing the beads. They did this activity in three groups. I already had told them that as soon as they finished stringing the beads they should come and give the result to me. One of the three groups did it first and came to me and the other two groups came later. The group that came earlier was awarded as star group. We repeated this activity. This time all three groups finished it at the same time. So, all were awarded stars.

**Count the number of oscillations:** Students were paired and asked to do this activity. Teacher gave a pendulum and counted the number of times the pendulum swings during this activity.

**Pasting ten bindies from one card to the other:** Teacher gave a bindies card and an empty card. The children came with their pair near the pendulum where they would find out how to place the bindies from one card to another; one girl at a time. The other students were counting the oscillations of the pendulum. This was a very interesting activity to measure the time taken to complete the same kind of work by different persons. Some pair did this activity in a lesser interval of time, but for others it took more time.

All the above activities were used to develop understanding of the terms ‘earlier’ and ‘later’. Students also used a devise like a pendulum to measure the time. This was a non formal measurement of time.

**Video to Watch:** Teacher practiced days of the week and also months of the year using a rhyme. [https://www.youtube.com/watch?v=MLs9OHSaqYc](https://www.youtube.com/watch?v=MLs9OHSaqYc)

**Understanding:** I gave the worksheet given below and evaluated the concept of morning, afternoon, evening and night.

**Assignment:** I gave an assignment to prepare an album of their day to day activities, which they did. I asked the students to do this activity by themselves. One of the students drew it herself and brought it to me and I loved it.

In the pictures in next page, she started from the morning sunrise, brushing, bathing, eating (breakfast), going to school, in the classroom, taking lunch, writing diary homework, returning home, doing homework, eating (dinner), going to bed. My child drew it creatively putting all her imagination in it. The sun drawn by her, carrying a yellow bag (since her bag is yellow in colour), the classroom with a teacher (myself) and a addition sum written on the board; she can’t skip her diary work, and in her night sky the moon is white in colour but her stars are in different...
colours. Children are very much more creative and imaginative than we are. We can't imagine a colourful sky in the night. I haven't ever seen such a colourful creative project before. That's why I would like to give it a special mention.

Student's work: drawings of the activities which they do from morning to night

‘Students are always smarter than what the teachers are thinking’ and ‘My students are smarter than me’.

If you have tried a lesson that could inspire other teachers, please send us your notes and classroom photos at facebook: https://www.facebook.com/groups/Thisaimaani/ Whatsapp: 89 40 40 04 48
Lesson objective: The lesson aims to develop understanding different soil types and clay as a type of soil, and knowing the possibilities of moulding. Discuss pottery its uses and processes.

Activities carried out:

Exploring Types of soil: Students were asked to bring soil from their houses and localities. Particle size (tiny, presence of small stones etc.), Color, Texture (smooth, lots of gravel, wet etc.) were aspects observed in the different soil students brought. I had brought potters’ clay in addition to what students had brought to the class. Soils brought by students were compared to the potters’ clay. They were mixed with water to check their binding consistency and it was observed that only potters’ clay had good binding capability. Other soil types (black soil, red soil, sand) did not easily bind. The observations were consolidated and written on the board.

Points that were consolidated: Clay is a soil type; the binding ability of clay is useful when making pots or utensils.

Hands on clay moulding: Clay was given to students and they were asked to make kitchen utensils. Students made different cups, plates, pan, spoons, ladles and pots. Questions asked during the activity - are these kind of clay vessels used in your houses? (Students replied: no, not very much, they are very fragile), can we use the vessels that you have made now e.g. can we pour water into the pot you have made? (Students: no, this is not baked so this will break). From where does a potter get clay? (Students: Don’t know)

and finally we decided to go to a potter to see how pots are made.

Before going to the potter, we discussed some questions that he will be asked. How many years since the potter started making pots, from where does he get clay, what is baking process, how many days does the potter need to make pots: these were some questions that evolved out of the discussion.

Visiting a potter: Students were taken to a pottery where they observed how the potter made different vessels. He made: pots, cups, pans, jugs, flowerpots etc. Students were excited to see how the potter made different shapes, and by the strength he exerts while making these vessels, making vessels shine, using nails and small sticks used for making designs, how wheel is made to rotate, preparing clay etc. The potter explained how he prepares clay, difficulties that he faces in preparation (removing glass pieces, sticks etc.), cost of the clay, process of pot making, drying, coloring, rotating mechanism of wheel etc.
I also tried to make something out of the clay. I found it very difficult to make a pot without practice, but I also felt happy at having tried making something. Students were not given the opportunity because handling the wheel is dangerous and could injure them.

After coming back to school we discussed on the visit, I asked if we were able to clarify our questions with the potter. I also asked them about the visit and how they felt. Students said, they enjoyed going to the potter and it was a new experience altogether. They were complaining that we could have brought back vessels he had made.

**My thoughts:**

**What went well**: Visit to the pottery was satisfying as it gave students a direct learning opportunity. Visit helped in experiencing which was better than classroom teaching. Students were able to understand the process of pottery.

**What could have been done better**: The whole school was taken to the potter, which made the place crowded and grade three students did not get focused observation opportunities. I could have brought some clay from the potter to be made useful later. I feel I could have invited the potter to the school first for a general interaction followed by a visit. This way some of the person’s background could be built up. It would have been good if I had also took students to the nearby market to show them how finished pots are sold. The focus was only on the pot making whereas, students making anything they would like to would have been more rewarding.

**Closing remarks**: Some incidents related to the try out were amusing, parents were asking why their wards were full of clay the other day, so I showed them material made by their kids and the parents felt happy seeing these. Cleaning the class after the activity was a hurdle but I managed it. I had to go many times to arrange the visit to the potter, the experience was exciting. At the end, the activities turned out to be fun and exciting for me as well as for my students.

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K. Maheswari, PST, GPS
K T Kuppam Pet.
Objectives of the lesson:

- Understanding the sources and uses of water.
- Understanding water pollution and how it affects life.
- Understanding solubility and insolubility in water.

Activities planned:

- Videos on the course of rivers - to discuss catchment area, water shed, rivulets, tributaries, rivers, distributaries, delta and mouth of the river.
- Classroom practical exercises to enquire about solubility and insolubility.
- Discussion on water, uses of water, water pollution, optimal usage of water etc.

Experience while transacting in classroom:

The experience of discussing the course of a river from its catchment to its mouth was good.

I used a video which explained about ‘The river Severn’ in UK. The video described the course of river Severn from its catchment area to its mouth. While watching, the students got a clear picture of the various sources of water. Especially children got a clear view of spring, waterfalls, stream etc.

Classroom lab: Activity to enquire what dissolves in water and what does not.

Four transparent cups were given to each student for conducting an experiment on solubility. Sugar, salt, turmeric powder, chilli powder, pepper, sand, oil, face powder, wax were some materials used. Students had brought some of the materials from their homes.

A tabular column was drawn on the blackboard for entering observations made by the students.

Students were asked to fill four glasses with water. They were asked to keep one of the four glasses aside without mixing anything. This was to help students to compare if materials dissolve or not. Students were asked to mix materials they had brought one by one and observe what was happening. After the mixing of each item, results was shared and tabulated on the blackboard itself.

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Item</th>
<th>Change in color</th>
<th>Change in taste</th>
<th>Soluble</th>
<th>Insoluble</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sugar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Turmeric powder</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Plastic paper</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
After this, children were able to identify which among the materials were soluble and insoluble in water. They also started questioning ‘why certain objects did not get dissolved?’ and had a very good discussion with their peers.

**Connecting solubility in water to water pollution:**

After the experiments, I asked the children ‘which glass of water will you drink? And why?’ Everyone answered that they would drink only the clean one and not the unclean ones which had materials dissolved in them.

Then I explained, how water gets polluted in rivers, lakes, ponds and becomes harmful to humans. I also showed various pictures of water pollution and its ill effects.

I showed a video on water pollution and its ill effects (especially in Ganges) and water pollution affected area in a river at Coimbatore (TV News program clipping) to the children. Then we had a wonderful discussion on ‘the ways to avoid water pollution and the need to save water for future’. Children gave various examples from their village and finally everyone decided that they will not waste water and avoid making water bodies unclean.

**What I think worked well:**

The entire class was good. The videos and discussions in the class were more effective than using pictures. Even though ‘the river Severn’ video was in English, students were able to understand the concepts in the video. Similarly, having everyone participate in the classroom lab activity was useful; all children of varied learning levels grasped the concept well since they were doing the experiments themselves.

**What I think could have done better:**

While using the video clip to teach sources of water (River Severn video) I could have used clips about our local rivers, but they were not available. It would have been more relevant for the children to know about the river of their locality.

**My thoughts:**

We can teach this lesson just by showing pictures, but it will not be as effective as teaching using multiple ideas like experiments, videos, pictures and discussions. After the class, children started to explain about their surroundings, about water pollution and its ill effects and the need to save water for future. This class made the children feel and understand the subject more easily. I tried the ideas I thought better, yet this can be taught even better using many other new ideas.

If you have tried a lesson that could inspire other teachers, please send us your notes and classroom photos at facebook: https://www.facebook.com/groups/Thisaimaani/ Whatsapp : 89 40 40 04 48

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K T Kuppam
திளக்கியின் புனையான அனுக்கிள் குறுக்கு அறிவுமான கல்லாலுக்குள் வரும் பண்டைய அறிவுக்கு என்ன கூற நல்லதா? கிளையும் எளிக்கரையில் அந்த சின்னமான இனியால் அறிவுக்கு கூறுக்காக வேண்டியதே. கொடுந்த புரீரையும் ஆரம்பத்தில் வரும் பண்டைய அறிவுக்கு ஆரம்பத்தில் வேண்டியதே. அதற்குப் போது மாணிக்கர் தொழிலை வரும் வேண்டும். புலிக்குகளைக் குறுக்கு தொழ்க்கான் எதுவும் பண்டைய அறிவுக்கு வேண்டும் என்று கூறியோரின் பிற்படையில் பண்டைய அறிவுக்கு கூறுக்காக வேண்டியதே.

திளக்கியின் குறுக்கில் 20 பண்டையாகிற்குப் போது குழுக்கள் 8 பண்டையாகிற்குப் போது வேண்டும் பண்டைய அறிவுக்கு வேண்டும். ஜூஸ்பர்கின் ஆக்சியம் அறிவுக்குப் பண்டையாகிற்குப் போது வேண்டும் பண்டை அறிவுக்கு அவர்கள் பண்டையாகிற்கு வேண்டும். ஜூஸ்பர்கின் ஆக்சியம் அறிவுக்கு வேண்டும் பண்டையாகிற்குப் போது வேண்டும். ஜூஸ்பர்கின் ஆக்சியம் அறிவுக்கு வேண்டும் பண்டையாகிற்குப் போது வேண்டும். ஜூஸ்பர்கின் ஆக்சியம் அறிவுக்கு வேண்டும் பண்டையாகிற்கு வேண்டும்.

பூைப்பு பண்டைய அறிவுக்கு வேண்டும் பண்டையாகிற்கு அவர்கள் வேண்டும் பண்டையாகிற்கு அவர்கள் வேண்டும் பண்டையாகிற்கு அவர்கள் வேண்டும். கூறுக்காக வேண்டும் பண்டையாகிற்கு அவர்கள் வேண்டும். கூறுக்காக வேண்டும் பண்டையாகிற்கு அவர்கள் வேண்டும். கூறுக்காக வேண்டும் பண்டையாகிற்கு அவர்கள் வேண்டும்.
காத்து பிள்ளையாருக்கு அடைய்க்குழந்து கைக்கத்து விளையாடினை.

அது குறிப்பிட்டு என்றும் அவர்களை முயற்சிச்சாதி இல்லையா? பின்னர் ஒரு வரைநாள் வைக்காத்து கருதலாம்? காட்டு பிள்ளையாருக்கு குறிப்பிட்டு மாற்றுக்கோள் என்னும் முயற்சிச்சாதி.

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"சோகத்து துணை இளைய செய்திகள்" எனும் குறிப்பிட்டிடும் எழுதிய இளைய செய்திகளை அலுவல செய்திகளின் கீழ் வரும் இரு மாதங்களுக்கு முன்னர 8.8.2016 ஆம் நாள் கொண்டாட்டாக இளைய செய்திகள் மற்றும் புத்தாண்டினால் புகழ்பெற்றுள்ளன. இந்தச் செய்திகளில், விளையாடில் "ஏன் தெரியுமானால்" என்றும் வரி அழைக்கும் தொடர்புகளில் விளக்கத்தை வழங்குகிறது. புத்தாண்டில் புகழ்பெற்றுள்ள விளையாடில் "ஏன் தெரியுமானால்" என்றும் வரி அழைக்கும் தொடர்புகளில் விளக்கத்தை வழங்குகிறது.

Eco Club

உண்டு அவனர் கிருட்சம். பல்வேறு பாரதி, இடம் காறு, காண்பவன் கதறகதிகள், சிறுத் குறிப்பிட்டிடும். பல்வேறு பாரதானைகள் மற்றும் கூட்டானைகள் இந்திரத்தில் செய்யப்படுகின்றன. 'சோகத்து பாரதி பிள்ளைம் கிழக்கிடை', 'நேரம் நீரில் காளும்' என்பன காண்பவன் பல்வேறு கதறகதிகளின் காற்று குறிப்பிட்டிடும் தொடர்புகளில் விளக்கத்தை வழங்குகிறது. புத்தாண்டிலும் இளைய செய்திகளிலும் செய்யப்படுகிறது.
(அம்மா கிளாகங்கள் விளக்க வாய்ந்த கூற்றுகள்)

புதுவை குறிப்பிட்டது கிளாகங்கள் குடும்பக் கூற்றுகள். புதுவை குறிப்பிட்டது கிளாகங்கள் புதுவையை விளக்க வாய்ந்த கூற்றுகள். இலக்கிய விளக்கம் குறிக்கும் ‘swachh Bharath’ பாட்டில் உள்ள கிளாகங்கள் குடும்பங்கள் காரணிகளாய் இவ்விளக்கம் குறிக்கப்படுகின்றன. இந்த குழு சிறப்பு பாடல் சுணரிபெயர்ப்பு செய்யப்பட்டுள்ளது. அதே தொடரும்வழியாக குழு சிறப்பு செய்யப் பாடல் குழு சிறப்பு பெயர்ப்பு செய்யப்படும்.

பாடிகள் குடும்பங்கள் காரணிகள் இவ்விளக்கம் குழு சிறப்பு பெயர்ப்பு செய்யப்பட்டுள்ளது. அதே தொடரும்வழியாக பாடல் பாடல் குழு சிறப்பு பெயர்ப்பு செய்யப்பட்டுள்ளது. பாடல் பாடல் சுணரி கிளாகங்கள் காரணிகளாய் இவ்விளக்கம் குறிக்கப்படுகின்றன. இந்த குழு சிறப்பு பாடல் சுணரிபெயர்ப்பு செய்யப்பட்டுள்ளது. அதே தொடரும்வழியாக குழு சிறப்பு பெயர்ப்பு செய்யப்படும்.

செய்திகள் குறிப்பிட்டது குழு சிறப்பு பெயர்ப்பு U.K.G. பாடல் பாடல் கிளாகங்கள் காரணிகளாய் இவ்விளக்கம் குழு சிறப்பு பெயர்ப்பு செய்யப்பட்டுள்ளது. உள்ள பாடல் பாடல் பாடல் சுணரி கிளாகங்கள் காரணிகளாய் இவ்விளக்கம் குறிக்கப்படுகின்றன. இந்த குழு சிறப்பு பாடல் சுணரிபெயர்ப்பு செய்யப்பட்டுள்ளது. அதே தொடரும்வழியாக குழு சிறப்பு பெயர்ப்பு செய்யப்படும்.

பாடல் குறிப்பிட்டது குழு சிறப்பு பெயர்ப்பு சுணரிய சிறப்பு பெயர்ப்பு செய்யப்பட்டுள்ளது. குழு சிறப்பு பெயர்ப்பு செய்யப்பட்டுள்ளது. உள்ள பாடல் பாடல் பாடல் சுணரி கிளாகங்கள் காரணிகளாய் இவ்விளக்கம் குறிக்கப்படுகின்றன. இந்த குழு சிறப்பு பாடல் சுணரிபெயர்ப்பு செய்யப்பட்டுள்ளது. அதே தொடரும்வழியாக குழு சிறப்பு பெயர்ப்பு செய்யப்படும்.

பார்வை அம்மா கிளாகங்கள் குடும்பக் கூற்றுகள் காரணிகளாய் இவ்விளக்கம் குழு சிறப்பு பெயர்ப்பு செய்யப்பட்டுள்ளது. உள்ள பாடல் பாடல் பாடல் சுணரி கிளாகங்கள் காரணிகளாய் இவ்விளக்கம் குறிக்கப்படுகின்றன. இந்த குழு சிறப்பு பாடல் சுணரிபெயர்ப்பு செய்யப்பட்டுள்ளது. அதே தொடரும்வழியாக குழு சிறப்பு பெயர்ப்பு செய்யப்படும்.
நூறு வருடங்களை தானியாக போக்கும் விளையாட்டுகள் நூறு வருடங்களை நூறு வருடங்களை தொடர்ந்தது. குறிப்பிட்டது அவ்வளவு தரவுகள் அடிப்படையில் முதலில் மதிக்கவும் முதலில் மதிக்கவும் குறிப்பிட்டது. நூறு வருடங்களை அண்டைய காலிரவு போர்க்காட்டுதல் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மை�ும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மை�ும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மை�ும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மை�ும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மை�ும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மை�ும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மை�ும் உண்மையிலும் உண்மையிலும் உண்மை�ும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மை�ும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மை�ும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மையிலும் உண்மைமையிலும் உண்
SMALL SCIENCE  ஆளியன் புத்தகம் மற்றும் பாட்டியல்

நீங்காக் புத்தகம் செயியப்பட்ட ஆளியன் தனது ஆற்றலை வசாந்தக் கிளையல் (Homi Bhaba centre for Science education) புத்தகம் மற்றும் பாட்டியல். பொருளாதாரம் வசாந்தக் கிளையல் 3 புத்தகம் செயியப்பட்டது எனவே ஆண்டு காணிக்கிறது, பாட்டு புத்தகம் முன் பாட்டு பாட்டியல் புத்தகம் மற்றும் பாட்டியல். பின்னர் பிரிக்கும் பிரிக்கும் பட்டியல். ஜிரு பிரிக்கும் பிரிக்கும் பட்டியல். அப்படிக்கு பிரிக்கும் பட்டியல். நீங்காக் பிரிக்கும் பட்டியல் (IV பத்திய).

புத்தகம் மற்றும் பாட்டியல். பெரும்பான்மையில் கூறியுள்ள தனது பாட்டியல். குழந்தைக் கற்கும் பாட்டியல் பெரும்பான்மையில் கூறியுள்ளது. பின்னர் கூறியுள்ள முறையில் பாட்டியல் கூறியுள்ள பாடு தீர்மானம் (divergent thinking) கூறும்.
3. செழும் அறிவியல் கல்வி மற்றும் வேலைச் செய்யும் விளக்கங்கள் செழும் இலக்கியத்தில் கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. தற்கொடை வெளியில் பயன்படுத்தப்படும் சீர்தொடர் வேலைச் செய்யும் வகைகளாகும். இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது. இவற்றில் பயின்று கூறப்படும் வேலைச் செய்யும் வகைகளுக்கு முன்பே குறிப்பிட்டது.
An informal discussion with Sankar Ram

We had an interesting discussion with Sankar Ram on 7th December 2016, with a Tamil teacher working in a Government school, Sankaran koil. He also works for Thaai Thamizh palli in that place. He is teaching all lessons using performing arts. The discussion was made mainly on how children’s skills and knowledge can be leveraged to teach language.

He also insisted that the language classroom should be lively with activities and children should feel comfortable in expressing whatever they want to. The teacher should include children’s ideas also in planning lesson. Students should be allowed to commit errors and learn from their mistakes. Leaving a RED mark in their writing stops their writing. This discussion went for about 2 hours.

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Fractions: which is greater? Recount how children find answer

Date & Venue : Nov 1-2 Teacher Resource Centre (TRC), Lawspet

Teachers in Teachers’ Circle wanted to listen from other teachers of Pondicherry about how they work on the concept and design program for children. Based on their suggestion this year we, Azim Premji Foundation, Pondicherry arranged workshops on Number, Place Value and Fraction twice in the last few months. This is a report of the Second workshop on Fractions.

‘2/5 and 3/7, Which is greater?’ - The session started with this question. Different answers were given by the teachers. But our Resource person Jayasree suggested that we not only talk about it but represent the answer by stating its logic. Most of the teachers used the L.C.M method of finding the equivalent fraction and then comparing the answers. But two of our teacher tried a different method of comparing using pictures, and comparing using fraction cutouts. Then they discussed the meaning of fractions using the same example. ‘How fractions are introduced to the children and from which class they should be introduced?’ Jayasree asked the teachers to share their experience of teaching fractions, the different methods they have used to teach fraction and why children found it too difficult to understand fraction. The answers showed that most of the teachers introduce fraction through part of a whole method, because this is the most common method and the one given in the text book. Children find it easy at the beginning stage, that is representing the given fraction in a picture or reading the fractional number shown in the given picture. But only a very few could understand the meaning of the fraction.

Jayasree suggested that this problem is because of the ‘part whole’ method. She said that children can understand fractions by the ‘Share’ method based on which she had done a three years experiment in a school in Karnataka. She moved on to the different meanings of fractions, saying that there are five meanings of a fraction.

i. Part whole meaning - ½ this means a whole is divided into two parts and ½ represents one of those two parts.

ii. Share meaning : ‘½’ in share meaning this indicates that one whole is divided into two equal parts.

iii. Measure meaning: Measure meaning of fraction says that 2/5 means 1/5 +1/5 or two 1/5s’.

iv. Ratio or proportionality meaning: In this ½ means 1:2

v. Operator meaning: This takes a fraction as an operation.
The Resource person explained each meaning of the fraction with suitable examples. She also gave different activities to solve simple problems in fractions without recourse to the algorithm and without using the calculator. By this activity she showed how the share meaning of a fraction is meaningful when compared with any other methods. Especially at an early stage of introducing fraction 'share meaning' helps in a better understanding of the concept. She spoke about the experiments done by her and her colleague, Mr. Sunil. She also showed a short film on how the children are solving the problems by stating the logical reason for each solution. All the teachers were interested in that film. Because they had never seen children giving brilliant explanations of solving a problem in fractions.

Finally she posed a question 'Is it possible to measure any length exactly?' By this question Jayasree concluded that exactness is not possible all the time. She recalled the definition for rational numbers and irrational numbers. She finished by saying that 'Fraction is a gift in Mathematics to measure the measurement of objects that can't be measured exactly'.

The second day began with a quick recap of the things we discussed the previous day. While we were doing this, a contradiction arose between the resource person and one of the teachers. RP said that the Share meaning of fraction is the best method and the teacher argued that the Part whole method is comfortable for the children to learn fractions. The teacher justified her points by giving many examples and stating that the word, fraction, means 'part of a whole'. The discussion was a healthy one that examined the fraction in depth from two points of views. After this discussion the actual session started. Jayasree gave a task: she wrote four fractional numbers and asked the participants to represent those numbers on a number line. All the teachers tried but only two of them could come up with the correct answer. Jayasree related this activity with the measure meaning of fraction, that is, 5/3 means there are five 1/3s' in 5/3. Then she showed a video in which children casually deal with a much a bigger fractional number like 700/1000 by showing it on a number line. She said that this is possible only because of the share meaning of fraction. The day ended with a feedback session. We got positive feedback from the teachers. They felt this session was an eye opener in the teaching/ learning of fractions.

Try this: 12/3 means 12 roties is shared equally among 3 person. So, each will get 4 roties. Try this yourself 'What's the answer for11/3? And show this in a number line' Teachers showed this in their number line.

After this workshop teachers tried the above methods in their school and experiences were shared in Facebook.
Date & Venue: Nov 5 - TRC Villanur, Nov 19 - TRC Lawspet

The session started with discussion on 'where the concept of subtraction is used in our day to day life'. Teachers started to share their experiences.

**Real life subtraction**

Some instances teachers shared about subtraction in real life.

- When a period is over they look at the clock and count from that to the next period.
- Kilometer in vehicle – Difference between initial and final reading.
- Work out - how long and how much.

We had a discussion on whether what we discuss or teach about the subtraction in classroom concept is helpful to children. ‘We teach subtraction as a concept which helps in calculation but not connected to real life’.

What we teach in the classroom and how we teach.

- Using sweet, asking if you eat a few how many will be remaining
- If there are three flowers and we take one or two, how many will be remaining?

These example situations where most deal with remaining or partitioning and connect inverse of addition methods; comparison methods also to be included. [Even if we do not think that all four methods were discussed in the classroom.]

**Discussion Points**

Meaning of subtraction, what prior knowledge is there to help understand and develop the skill of subtraction?

1. Partitioning: ‘The taking away’ situations are referred to as partitioning.
2. Comparison: refers to those situations where two quantities are compared.
3. Reduction: refers to the reverse of the augmentation in addition.
4. Inverse of addition: refers to situations where we need to determine what must be added to a given quantity to reach a certain amount. - see subtraction through addition.

These are the meanings that were dealt in the discussion with examples; it is addition in
particular which is important in understanding subtraction. The number sense, which is a pre-numerical concept and is also very important in understanding this concept.

In this workshop teacher were asked to categorize their examples

Teachers engaged with the concept of subtraction; they felt that to understand different strategies and real situations and to conceptualize them mathematically, we should talk about the different ways we understand subtraction in real life. They spoke of the way we teach subtraction in classrooms with real number and place value without giving students a space to connect this to real life.

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EVS Workshop on the theme of ‘Water’

Date & Venue: 22nd Oct 2016, TRC Mudaliarpet, 12th Nov 2016, GHS Thirukkanur

A workshop on exposure to water sources, water consumption, river, water pollution, water purification and water testing was conducted by EVS team in Azim Premji Foundation. The intention of the workshop was to understand the course of a river, its pollution, water purification methods and the methods that could be tried in schools or houses with simple materials. A hands-on activity has also been done where the water was tested after trying some simple purification methods.

Main points of discussion

- Water sources - surface and ground water sources
- Water consumption - domestic and industrial
- River and its course - origin, catchment area, watershed, tributaries, distributaries and delta
- Water pollution - Industrial effluent, domestic sewage, agricultural runoff, solid waste dumping and water transport.
- Water purification (on large scale) – Sewage treatment, wetland treatment and desalination.
- Water purification (simple methods) – rapid sand filtration, cloth filtration, coagulation using alum, sedimentation and distillation

Hands-on

- Teachers took a bucket of sample water from the tap and added some pollutants found in river like fertilizers, pesticides, mud, bleaching powder and rusted iron pieces.
- Water testing - Tested for acidity (pH), hardness, chlorine, chloride, nitrite, nitrate, ammonia and iron. The readings have been noted.
- Water has been purified by rapid sand filtration (with activated charcoal and without activated charcoal), cloth filtration, coagulation using alum and sedimentation.

Rapid sand filtration setup (without activated charcoal)

- The water purified through rapid sand filtration (which was visibly clean) has been tested again for acidity (pH), hardness, chlorine, chloride, nitrite, nitrate, ammonia and iron. The readings have been compared with the readings noted earlier. Though there was reduction in some of the pollutants,
the water was not yet safe for domestic use as verified with water standards prescribed by Bureau of Indian Standards (BIS).

- This made us realize that it is easy to pollute water but it is not easy to purify it. We will have to rely on costly and high technology solutions, which are moreover not proven to be highly efficient.

Planning a school level project - discussed what could be tried in classroom. All the water purification methods tried in the workshop can be tried in the classroom. This could help the students to try simple methods of cleaning in the home too.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Sources of the pollutant</th>
<th>Harmful effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total dissolved solids</td>
<td>Landfills of Domestic sewage and solid waste, livestock waste</td>
<td>Gastro intestinal irritations, corrosion of pipes</td>
</tr>
<tr>
<td>Total coliform bacteria</td>
<td>Domestic sewage, solid waste, livestock waste</td>
<td>Gastrointestinal illness</td>
</tr>
<tr>
<td>Fluoride</td>
<td>Industrial waste, Natural occurring</td>
<td>Brownish discoloration of teeth, bone damage</td>
</tr>
<tr>
<td>Nitrate</td>
<td>Fertilizers, domestic sewage, livestock waste</td>
<td>Algal growth, Methemoglobinemia or blue baby disease in infants</td>
</tr>
<tr>
<td>Phosphates</td>
<td>Fertilizers, livestock waste</td>
<td>Excessive algal growth and choking of waterway</td>
</tr>
<tr>
<td>Iron</td>
<td>Leaching of cast iron pipe, industrial waste</td>
<td>Hemochromatosis, disease that can damage the body’s organs</td>
</tr>
</tbody>
</table>

Table 2: The purification methods used to remove some common pollutants

<table>
<thead>
<tr>
<th>Method of Purification</th>
<th>Wastes Removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coagulation</td>
<td>Organic Matter (phosphates)</td>
</tr>
<tr>
<td>Sedimentation/Filtration</td>
<td>Suspended solids</td>
</tr>
<tr>
<td>Activated Charcoal</td>
<td>Chlorides, Fluorides (not suitable for microbial contamination, metals, nitrates and other inorganic contaminants)</td>
</tr>
<tr>
<td>Reverse Osmosis</td>
<td>Heavy Metals, nitrates, inorganic contaminants (not for organic wastes)</td>
</tr>
<tr>
<td>Disinfectant</td>
<td>Microbial Contamination</td>
</tr>
</tbody>
</table>

Note: Above lists are not exhaustive
Workshop for Primary school teachers
Know your city

1st session - Date: 5th Nov 2016, Venue: Teachers’ Resource Centre, Mudaliarpet (Opp to RTO office).

2nd session - Date: 19th Nov 2016, Venue: Teachers’ Resource Centre, Vivekananda GHSS, Villianur.

Travel is a theme that comes up in multiple primary school subjects. A set of two workshops-cum-exposure visits were organized at the Teacher Resource Centers. We discussed on travel, where the students can be taken, how the teachers and students can prepare before the visit, what can be done during the visit and how discussion can be organized after the visit. The intent of the workshop was to make exposure visits more focused and structured. In addition to the discussion, the teachers visited Puducherry museum guided by Kannan from French Institute of Pondicherry, Bharathiyar memorial house on 5th Nov 2016 and teachers visited Sree Kokilambigai Samedha Thiru Kameshwar temple in Villianur guided by Pulavar Venkatesan on 19th Nov 2016.

Main points of discussion

- A short quiz on ‘How well do we know Pondicherry?’ Discussed interesting facts on Puducherry. Eg: Why is Keerzhur monument called ‘referendum’ monument and not independence memorial?

- The teachers identified the following places, from photos, which could be explored with students in Puducherry - Beach, Chunnambur boat house, Ayi mandapam, Auroville globe, light house, Thengaiithittu fishing harbor, Villianur temple, Sacred heart Basilica, Ousteri lake, Roman Rolland library, Arikamedu and Botanical garden.

Exposure visit

5th Nov 2016 from Mudaliarpet

- Teachers visited the Puducherry museum guided by Kannan. Teachers were initially explained about preparing a museum visit and then segment by segment about the exhibits and how they need to be explained to children. During the visit the teachers were also shown how they can organize the visit to make it useful and interesting for the students’ learning. Kannan also explained how a museum can be organized better and about types of museum such as natural museum, history museum, etc.

- Then we visited the Bharathiyar memorial house where they were told about the life of Bharathiyar by Sengamalathal. The teachers also browsed through the photos and artifacts of Bharathiyar in the museum. Then discussed
how children could be taken to such a place and how could it be interesting for the teachers and students.

19th Nov 2016 from Villianur

- Teachers visited Thirukameshwar temple guided by Pulavar Venkatesan who explained the architectural, cultural, historical significance of the temple and how this information can be inferred from stone inscriptions and other evidence from this temple and other temples. Hence he insisted on how important it is for the teachers to know the place before organizing an exposure visit for students. He also talked about the need for exposing them to the sequence of changes in the place so that they visualize the changes and realize how the place has changed over the years.

- He then suggested the teachers consider the temples in Madagadipet, Thirubhuvanai, Thiruvandarkovil and Bahour, which are of historical significance. The temple in Madagadipet is older than the big temple in Thanjavur and there was once a Sanskrit college at both Thirubhuvanai and Bahour.

- Later we discussed the output of these visits, which can be travel guides for the locality, and when done by many students in different localities this could be collaged to form a students’ travel guide to Puducherry. The outputs when shared will also expose the students to other localities within Puducherry.

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Movie review for Children’s day

Children’s movies in different languages (Tamil, English and Hindi) were collected for screening before children’s day. Teachers can see them, discuss them and select a few movies which can be projected in their school on Children’s day. Some of them are, I am Kalam, Malli, Pasanga part 1 and 2, thanga meengal, Kaka muttai, Karate kid, He named me Malala, and so on.

14 teachers from different schools have seen the movies that are screened in all the TRCs (Mudaliarpet, Lawspet, Nonankuppam and Villianur). Teachers selected the movie after seeing the catalogue of short films and videos. The selected movie was projected and continued with a discussion on what the main idea of the movie is and what kind of values can be discussed with children.

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The discussion with 12 teachers went on from 10:30 am to 1:30 pm at Mudaliarpet TRC. The facilitator started the discussion with the introduction of the author and the main theme of the book. She gave an example of how our teaching approach conflicts with practical life—‘we are saying not to touch garbage; but parents of our children must be cleaning out garbage. How are we discussing this in the classroom?’

The discussion points are:

**Teacher 1**: Teachers discussed how a text book is biased based on religion and gender. In text books we can see more reference of Hindu festivals and there is just mention of a few other religious festivals. Even in Manu Sastra we can see a detailed explanation of various punishments for each mistake; but we are teaching children to adjust, compromise, forgive, etc.

Our education aims at achieving equality in society. It also insists on secularism. But we have the practice of untouchability even now. The girl should change her religion to that of her husband or even wear burkha after marriage. Even a simple rule about crossing the road is followed by people only when it becomes law.

We, the adults, are responsible for most of the issues. Even in early grades like 4 we are asking children about their caste and, as well, allocating some kinds of work for boys and others for girls. Children are learning from us. Under these circumstances we must ask ourselves what is happening to the aims of education or the constitution?

**Teacher 2**: When we were teaching a lesson on ‘rights’, and discussing the caste system, one group of children were looking at another group of children in the class. They know their castes but we don’t know how to handle this.

**Teacher 3**: Last week a boy came with toffees
on his birthday. When he distributed them, no one took. Then I called him, took a toffee and ate it in front of my children. After seeing me eating, all the children took toffees. This incident was surprising to me because I noticed this only last week. We are teaching one thing and learning something else from parents and society.

**Teacher 4:** During election time, children are taking leave to join in canvassing, for which they receive money and food. They are not listening to us when we try to stop them.

We are talking about most things on the basis of Hinduism. We teach our children to find reasons based on who is affected by these practices. We should relate history to the current situation and thus help them to understand. We can’t change their elders.

**Teacher 5:** In grade 10 we have a lesson on Periyar. In that lesson he was asking if men can remarry, why not women. Even the girls could not accept this idea.

**Teacher 4:** Even in EVS, 3rd grade we can see controversial pictures which is good. (In one picture everyone is reading; in the other picture, a mother and girl are doing the work while father reads the newspaper and the boy is playing) But answers to questions from children makes it clear that the mother should do all the household work.

**Teacher 5:** In 10th grade history, there is a lesson on Europe. Students are struggling to understand. They didn’t see the importance of learning this lesson. We don’t have any information about India after independence. There is no lesson on Pondicherry history. We had a history book on Puducherry in grade 3, a few years ago but that has been stopped. We have a good history about ‘Arikamedu’ and Karaikal ‘port’

Participants said that this discussion is useful and related to our classroom.

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Exposure Visit
Neyveli Lignite Corporation India Ltd.

17 science teachers from government schools in Puducherry visited the Neyveli Lignite Corporation on 19th November, 2016. These teachers are a part of the Puducherry Teachers’ Circle, a professional development effort that started two years ago to enhance the quality of science education in the district. The objective of this visit was to deepen their understanding of how electricity is generated and transmitted.

The Neyveli Lignite Corporation India Limited (NLC) was established in 1956 for mining Lignite and using it to generate Power. NLC at present generates about 3000 MW of electricity, around 10% of India’s total power needs. This is distributed to the southern states such as Tamilnadu, Puducherry, Andhra Pradesh, Telangana, Kerala and Karnataka. Around 47% of the power generated at NLC goes to Tamil Nadu.

NLC has three active mines at present which are named Mine I, Mine IA and Mine II. This covers a total area of 97 sq. kilometers with a total capacity to mine about 30 million tons of lignite per annum. Lignite is a soft and porous carbonaceous material intermediate between peat and sub bituminous coal. It is dark brown in color. It takes 25 million years to form lignite.

A huge reservoir of artesian aquifer water occurs below the entire lignite bed, exerting an upward pressure. Unless this water pressure is reduced before mining, it will flood the mines. This problem is solved by selective formation of bore wells and pumping to depressurize the water pressure to a safe mining condition. The water is being used in the thermal power station.

There are three main activities at NLC – Mining, Afforestation and Power Generation. The team visited these three sites and interacted with the experts to understand the process.

Mining:

The first mine at NLC was opened in 1961. There are specialized heavy equipment called the bucket wheel excavators to dig in the mines. It has a large wheel that consists of a multiple buckets to scoop as the wheel turns. The entire mined material is transported from point to point using long conveyor belts made of steel. The mines are active 24/7, 365 days a year, so as to never bring a break in the production.
Thermal Power Plant

NLC has five thermal power stations with an aggregate capacity of 3240MW. The thermal power plant converts the chemical energy of the lignite into electrical energy. This is achieved by using the lignite as fuel to convert de-mineralized water into steam in the boilers, expanding it through the turbine and coupling the turbines to the generators which converts mechanical energy into electrical energy and the electrical energy thus produced is transmitted through wires. For large distance transmission, the voltage is stepped up and it is reduced using a step down transformer before it is sent for domestic purposes.

What most of us mistook to be the thermal power plant, was in reality the cooling tower. These are hyperbolic towers that operate through a chimney. Hot water is sent to the tower, released through a tiny outlet into the large space where the heat dissipates into the atmosphere and the cooled water flows down. This water is recirculated and reused for condensing the super-heated steam.

Afforestation

The mines where the lignite reserves are exhausted, are shut and a systematic plan for reclaiming the land is executed. The mines are filled with soil and a layer of top soil is spread at the top. Almost 75 different species of plants have been planted in the afforested area and it is home to various birds and animals as well. The NLC township was green and pollution free contrary to our expectation of it being dry and polluted.

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On a Biodiversity trail
Discover, Observe and Realize

As part of the Young Discoverer’s Program, a winter residential workshop was organized for 3 days. This workshop was conducted from 26th – 28th December, 2016 at Agasthyamalai Community-based Conservation Centre (ACCC) at the foot hills of Kalakkad Mundanthurai Tiger Reserve (KMTR), Tirunelveli. The objective was to understand ‘Biodiversity’ in greater depth with sessions on:

1. Understanding Biodiversity
2. Classifying Biodiversity and
3. Measuring Biodiversity

KMTR is a part of the Western Ghats and Srilanka biodiversity hotspot with diverse plants and animals, some of them being endemic to this region only. Agasthyamalai Community-based Conservation Centre (ACCC) was established in 2001 after a decade long research and conservation efforts by Ashoka Trust for Research in Ecology and Environment (ATREE). Dr. Ganesan and his team of experts at ACCC guided us in understanding various aspects of Biodiversity through hands on experience.

Understanding Biodiversity - We started understanding biodiversity with a basic question, ‘What do we consider biodiversity?’ We stumbled upon many questions such as: Do we consider a fruit as a biodiversity or the whole plant? Do we consider ourselves as biodiversity? What about the things made by us? Many such queries led us to some factors that would determine whether something can be called a component of biodiversity or a system for nurturing biodiversity. For example, a lake or a pond would qualify as a system for nurturing biodiversity whereas a tree would be a component of biodiversity. Brainstorming on our long held thoughts on biodiversity helped in understanding the various perspectives that the participants had. Similar discussions with children in classrooms is necessary to explore their ideas, address misconceptions and construct knowledge.

In order to understand biodiversity, one needs to understand the interrelationship between organisms. Interactions can be mutual, commensals, parasitic etc. Participants were to go for a field observation to observe and record the interactions around them. Participants were able to spot various interactions that were both familiar and unfamiliar. The cattle egret that walks along with the cattle feeds on insects that gets exposed as the cattle walks. The bat or the boar that eats a ripe palm fruit helps in dispersing its seed leading to a symbiotic relationship. Through this session, participants noticed that every organism seems to be interacting with one another. Some are beneficial, some neutral and some harmful. If we can develop in children, the ability to observe these and explain it with reason, they will definitely understand their environment better. This will enable them to think, analyze and make responsible choices.

Classifying Biodiversity - It is in our nature to group & organize things. Classification in the living world plays a crucial role in studying and understanding the living organisms. Participants were asked to identify a plant by listing the
characteristics of its parts – forms or appearance of the tree crown, patterns on the bark, colour of the sap/latex, smell of the leaf when crushed, arrangements in shapes of leaves, vein patterns on leaves, difference in the shades of green between upper and lower leaf surfaces, scales and hair on leaves and shoots, shape of the leaf base and tip, types of leaf margins etc. to distinguish between closely related plants.

To spot birds, we had to first learn a few thumb rules of bird watching; to move around slowly and silently. To identify birds, one has to observe the colours present, size and shape of the beak, shape of the tail, length of their legs, colour of the eye etc. Butterflies were to be identified based on the shape of their antennae, scales, colours, size, shape of the wings, resting stage, flying habits and body type.

Identifying organisms based on their characteristics was a fun and exciting experience. One of the key insights from this session was the understanding that every organism has its SPOT characteristics. For example, mucilage is a SPOT character of the Malvaceae family. Yellow and white colours are characteristics of butterflies that belong to the Pieridae family. Close and continuous observation will equip us to identify many more such spot characteristics in organisms. Our usual tendency is to look at a plant or animal or bird and immediately learn its name from an experienced mentor. Such a tendency promotes rote learning and does not develop observation skills. Identifying an organism through its characters not only builds skills but also establishes a connection with that organism.

Measuring Biodiversity - In this, we used species diversity and habitat diversity to enable us to understand how species or populations are surviving through time. These measurement parameters are used by conservationists and wildlife biologists to reduce ecosystem degradation and halt biodiversity loss.

Participants followed the Quadrant method and Line transect method to measure biodiversity of plants, birds and butterflies. In the Quadrant method, an area is split into quadrants of equal sizes and the number of individuals of each morphotype are counted. In the line transect method, the counting is done along a straight path for a stipulated period of time. In case of bird watching, one has to maintain a regularity in observation – observation must be done every day at the same time and the same point.

The workshop laid foundation for us to understand and take steps to manage biodiversity for the harmonious co-existence of life on earth. One of the important steps would be to involve students to be a part of various biodiversity conservation efforts. Biodiversity monitoring committees could be formed in every villages to safe guard biodiversity and strengthen their economy. Earlier butterflies were looked at as colorful insect that flew from flowers to flowers, but the workshop made us see the role played by each of them in building an ecosystem and adding to the richness in biodiversity.
Teachers’ Resource Centre - New Arrivals

READERS ON STAGE by Aaron Shepard

This book is a collection of resources for scripting, directing and teaching reader’s theater, primarily to ages 8 and up. Part 1 offers three sample scripts to learn from and enjoy. Part 2 highlights each major aspect of reader’s theater - scripting, staging, and dramatic reading—offering tips and tricks you’re not likely to find elsewhere. Part 3 provides all the plans, notes, handouts, and worksheets from actual reader’s theater workshops, ready for copying.

SPEED READING: The comprehensive guide to speed reading by Nathan Armstrong

Speed reading will help you increase speed by 300%. You’ll learn essential speed-reading techniques, exercises, and strategies to decrease your study time and gain a competitive edge on your classmates. These techniques will also allow you to absorb meaningful words and texts so you can ignore the rest. This book is all about increasing your learning speed, not just your reading speed.

A TAMIL AND ENGLISH FIELD GUIDE TO THE WETLAND BIRDS OF SOUTH TAMIL NADU by T. Ganesh, Allwin Jesudasan and M. Mathivanan

This bilingual guide can help identify 88 species of water birds found in the irrigated wetlands of Tirunelveli and Thoothukudi districts of Tamil Nadu. The guide can also be used in any inland wetlands of southern India. This book will also kindle interest in nature among the citizens of the districts and beyond and help conserve wetlands in their neighborhood.

MATHEMATICAL MINDSETS by JoBoaler

Unleashing students’ potential through creative Math, inspiring messages and innovative teaching. Drawing on author’s extensive research with thousands of students, Jo Boaler reveals how teachers, parents, and other caregivers can transform children’s ideas and experiences of math through a positive growth mindset method. Filled with illustrative examples, Mathematical Mindsets is an important guide to the information, technique and activities that can be put in place to make math more enjoyable and achievable for all students.

THE STORY OF PLANET EARTH by Renu Anand

This story of planet earth gives a detailed, yet interesting, account of a lot more aspects related to the creation of Earth’s origin in light of the Big Bang explosion, arrival of water on its surface, formation of its atmosphere, evolution of life forms from unicellular organisms to giants like dinosaurs, changes from its core to crust and its current state in terms of unsettling global changes, a majority of which find their roots in our greed and thoughtlessness.

EXPERIMENTS PROJECTS ACTIVITIES by Vidhu Narayanan and Syamala Srivastavah

It includes a variety of Do-it-Yourself ideas, games, surveys, audits, projects, experiments, and nature walks. The activities are based on an array of themes, such as food chains, plants, birds, animals, endangered species, soil, water conservation, pollution, 3Rs, waste management, weather and natural environment. These themes highlight environmental changes, offer solutions, and aid learning in a fun way.

முதலில் தமிழ் வலியுருசம்பவ பீகங்கள் - பாடல்கள் வடிவ வேலை

புத்தாண்டு அழகாவிக்கிறது பூச்சிகள் வலியுருசம்பவ பீகங்களின் விளக்கங்களுடன் வண்ணமைத்த பொருள்களுக்கு முன்பு வலியூறுகளுக்கு மேலாண்மை வழங்கும் வழக்கங்களிடமிந்தம் வளர்வது புத்தாண்டில் முதல் புதிய குறிப்பிட்டியிடம் வழங்குவது.