

*First Annual Convention of the
TN-Pondicherry of Regional
Council of IAPT
Sep, 23-24, 2017 @ IITM*

**Science Outreach –
A Road less travelled!**

D.Uthra

Dept. of Physics, D G Vaishnav College, Chennai



To create Space in our education system- NCF 2005 prescription

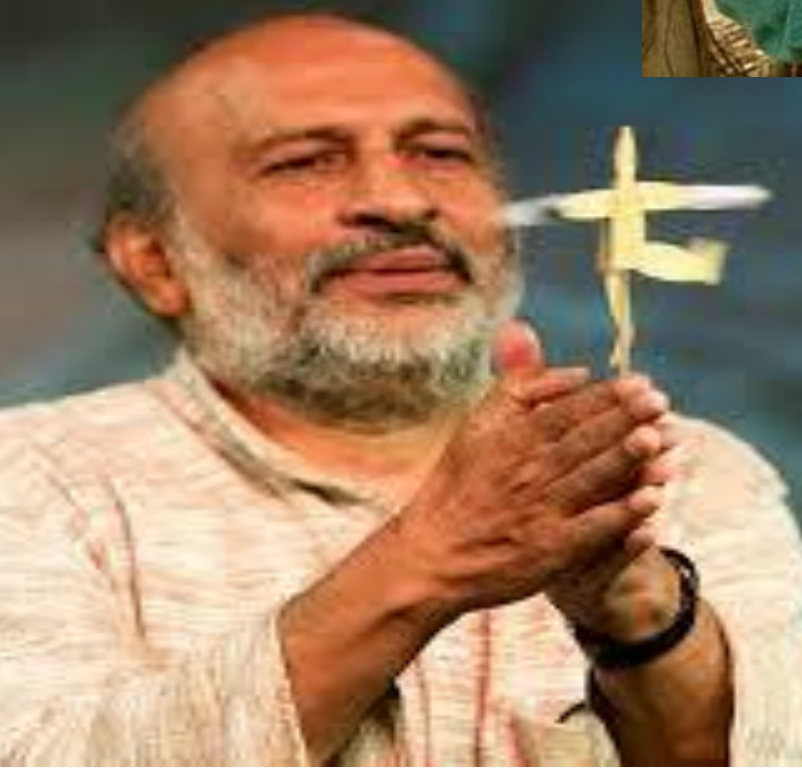
- Do we give 'quality science' education 'for all' ?
- Local knowledge, traditional practices, indigenous methods have no weightage
- To take modern science to them to widen/ reassess - reinvent
- To help dialogues, differentiate facts and myths
- Are we not alienating Science from "knowledge" through our system ?
- Should we not use science as an instrument of social change to reduce the divide ?
- non-formal channels of communicating Science
- **alternative** textbook writing / learning materials

As well all of us are clear

- We do not want to confine science within
 - textbooks
 - record notebooks
 - four walls of the structured classrooms
- So how are we even going to use this as an opportunity?

Change makers

eKlavya 



ASI - POEC



And Many...

CONNECT with Change makers....

- Arvindgupta
- Pratham, Ekalavya
- HBSCE - CUBE
- Ticklinks
- Foldscope Manu Prakash
- Knowledge without borders
- Royal society of chemistry
- ASI
- Zooniverse
- Kaleidoscope by IITM
- Outreach initiatives by IISC Teacher training centre, Hoshiangabad Centre or Homibaba centre
- TSN who sowed this seed wherever he went

Multiple intelligence and learning

- Efforts needed for preparing more learning resources
 - for children and young adults
 - books and reference materials
 - in regional languages,
 - teacher guides
 - May be -interactive rather than disseminative technologies
- Books, e-books, pictures, stories, cartoons, movies, live demos, public lectures, talks, science clubs (Varahamihira in Chennai) art forms
- Hands- on kits, materials, making by hand
- Visual, auditory, kinesthetic, art, interactive, one-way



Translation of excellent works on education and Science.

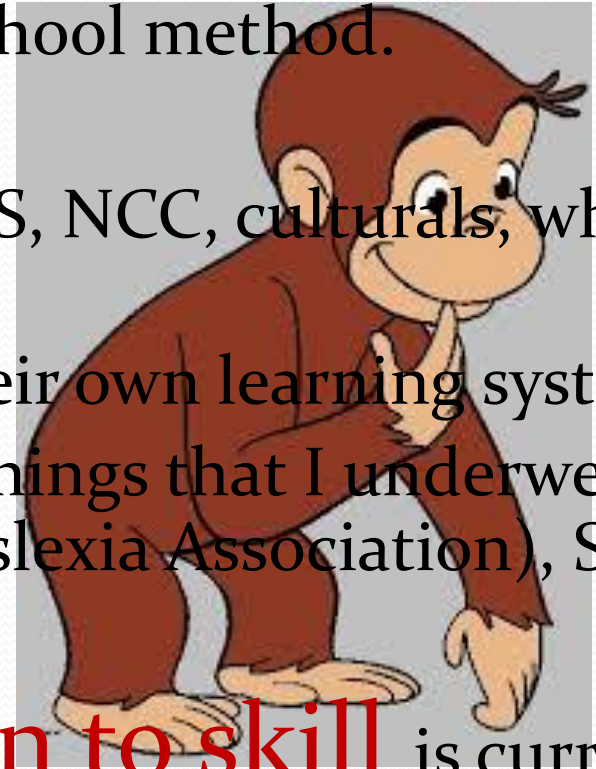
- **Knowledge without Borders** by the famous scientist Pierrie Petit
- There is a huge **collection of books** lying there, awaiting translators in Indian language.
- Arvind Gupta website is a source for us to choose what we want to translate.

There is a need for simple hands-on activities- Arvindgupta website, Agasthya Fopundation, Hoshiangabad Science Centre, IISc Talent development centre, TIFR outreach,...

- Somewhere due to lack of these, many school children shy away from science group. But Scientific bent of mind, rational thinking is there. So catch them thro communication, for which hands- on gives opportunity and builds the confidence of the science grads.

Kinesthetic and Tactile Learners

- It is almost non-existing in usual school method.
- What do we do for them?
- They are the ones we see during NSS, NCC, culturals, what not, now Science outreach too...
- They long for learning that suits their own learning system
- My work with NIOS, Dyslexics, trainings that I underwent to learn about dyslexia (Madras Dyslexia Association), SLD made me ponder more
- Content to Concept to **hands-on to skill** is current mantra
- But how do we achieve it with exam oriented, time bound, multilinguistic, diverse society like ours with other works for teachers(adhaar to election to vaccination to census) ?



Network in IT age- We need more Lilavati's daughters?

- Vigyan Prasar - NBT – CBT- Hoshiangabad -Vikram sarabhai - IISC outreach - TIFR outreach – can we have a outreach network portal? One stop like Shakshaat
- Child friendly
- Helps in easy and friendly access to parents, teachers
- Dubbings of science videos, TV shows- Turning point that fired many of our thought process
- history of Science/ scientists/ food/ textile/flora and fauna
- Multi-linguistic country – many of us can be roped in
- Techies to be involved

[About us](#)[Membership & professional community](#)[Campaigning & outreach](#)[Journals, books & databases](#)[Resources & tools](#)[Home](#) > [Campaigning & outreach](#) > [Outreach](#)

Outreach

Find out what we are doing to bring the chemical sciences to a wide range of different audiences, and how you can get involved

[Campaigning & outreach](#)

The Royal Society of Chemistry's Outreach programme engages a wide range of audiences in the chemical sciences. In the UK, we are the largest non-governmental funder of

Home

Publishing

ChemSpider

Education

Community

News

More...

Search

LearnChemistry

Enhancing learning and teaching



Curriculum links

Communities

CPD

Primary

Higher Education

About

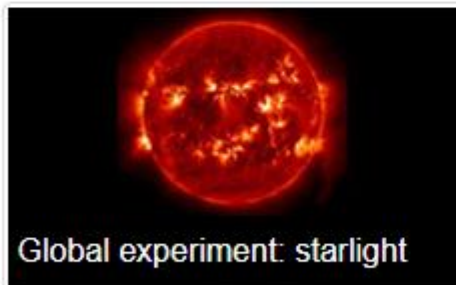
Websites

Learn Chemistry > Experimentation hub > Collaborative chemistry

Experimentation hub

Collaborative chemistry

Test your scientific skills and collaborate with thousands of students around the world. Take part in global chemistry experiments, and post your data to offer new insights, or participate in citizen science programmes selected from around the Web.



Global experiment: starlight



Global experiment: water



Global experiment: crystals



Global experiment: vitamin C

Resources

[View all resources](#)

SciStarter - citizen science database

SciStarter brings together millions of citizen scientists in the world; by offering thousands of ongoing projects by a variety of researchers, organizations, and companies. Participate in any of these projects to:

Print media, AIR, FM, TV, web

- Stories on evolution of various scientific facts/inventions/technology in Tamil
- Translations – Kaleidoscope team of IITM
- low cost science magazines look out for Science articles circulation in schools → School Science shows and Project days → Intertaction with Children motivated pointed out need for missing links → **URGENT** Need to **help**/ motivate/ inspire/ mould TEACHERS
- As there is so much to be done in science communication in Tamil, but no takers.



ARE WE as a SOCIETY ready for
this knowledge sharing ?

Can each of us we do our bit?

Toddlers ya Teens



Catch them young applies here. Science exhibitions, school day, National Science Day talk- call it whatever one likes, **but speaking science is needed**. No lectures, No Advice to children. Children love stories

Various Training Progs For Teachers



Outreach to SEEK other outreaches too



DWARAKA DOSS GOVERDHAN DOSS
VAISHNAV COLLEGE

(Autonomous, Reaccredited at A grade by NAAC)

&

FEDERATION OF SCIENCE CLUBS OF TAMILNADU

Welcome You All

Two Day Refresher Programme in Physics Practicals for

*PG Teachers of Chennai Corporation &
Govt. Aided Schools*

18-19, November 2013

Under the support of
DBT STAR College Scheme

Dept. of Biotechnology, Government of India





S.Saranya Devi,- “students prefer such co-curricular activities and welcome such training programmes,like boquet making and fresh flower arrangement (by TNAU) as they become more employable.” III Physics (2013-14)

SenthuraPandi is from a family that makes garlands and sells in market. He belongs to a poor family. After this workshop, he felt so proud about the job his family has been practicing for ages. He was thrilled about supplying garlands to the temples, after that. Those who attended this workshop and wanted to take it further, formed a small team and started decorating during many programmes in the College.

- Dubbings of arvindgupta toys from trash (came to know thro IITM Physics outreach)- 300+, now... -TAMIL medium students
- Translation of Maths materials for class 7 for Gyanome by our students



Seeds grows with a little nurturing





Lunch break activity-
Thanks to TSN Sir



Watchman turned to writer, gardener,
scholar too....Outreach binds people, helps
to bloom out, because it is voluntary,
unconditional 😊Pls look at the cheerfulness

But how to...

- seek help
- seek source of information
- give due credits/encourage at right time
- pat others and ourselves and recognise
- keep re-inventing, improving
- Constantly, consistently....
- Because IT IS OUTREACH
- And we need to build this CULTURE
- SOCIAL MEDIA – blogs, facebook, watsup gave us necessary impetus and momentum and networking
- and not to forget supplements of daily newspaper
- IT guys with passion for history/technology/ writing /films

Proud to share trilingual books from our students in archives.org

Dubbing of Arvind guptaji reached 300 from our group. SCERT has completed dubbing of all videos in Tamil. Outreach groups evolved

The screenshot shows a web browser window with the address bar displaying <https://archive.org/details/TheLibrarianOfBasra-Tar>. The page content includes a thumbnail of a book cover with the title 'The Librarian of Basra' and a Tamil title 'பஸ்ராவின ஸ்தலகாசி'. Below the thumbnail, the title 'THE LIBRARIAN OF BASRA - TAMIL - BHAVANI' is displayed, along with the author 'by BHAVANI'. The page also features a 'DOWNLOAD OPTIONS' section with a table listing file formats and their respective file counts.

DOWNLOAD OPTIONS	
ABBY GZ	1 file
DAISY	1 file
EPUB	1 file
FULL TEXT	1 file

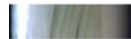
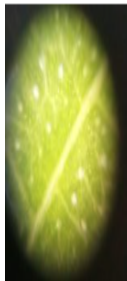
The Windows taskbar at the bottom shows the system tray with the date and time '07-03-2017 20:47' and the language set to 'ENG'.

Door opened with social media being the binder

- By 2014, RMSA started a pilot project for 100 Government Schools in TN for class 6-9 to give hands-on skills under STEM.
- Schools (village) noted increased attendance % on hands-on activity days . RMSA to RAA school adoption !
- This helps many children enjoy science and develop inquisitiveness
- These school teachers were given tabs loaded with experiments in science.
- Facebook brought many of the ICT school champions together
- Weekly target to do experiment in Physics, Chemistry, Biology for class 6 – 9 helped us break the barriers. Watsup, cellphone camera did magic
- They learnt to see the entire progress as **“Science”, breaking the barriers.**
- Many of the teachers **turned into mentors**, an idea which definitely the DBT Star Programme gave us.

DGVC-Physics

Posted by DGVC-STUDENTS on MARCH 5, 2017



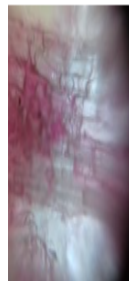
don't think its lays...but it is mosquito wing



yellow candies

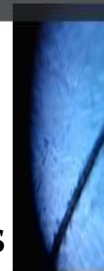


the wall of cells



guess this sweet thing tat add sugar to ur food

Physics looks at –
 Leaf of custard apple
 Mosquito wing
 Pollen grains of Hibiscus rosasinensis
 Cells in Outer peel of onion
 Feather
 Sugarcane – PONGAL Hols!!
 Mosquito proboscis
 Cumin stalk
 Cumin cuminum again
 Glucose
 Sugar
 Vicks
 Dals at home



dill mage more.....blood



Stalk of cumin



Not a planet, just a part of a plant



Glucose



Sugar crystal



Vicks piece





https://microcosmos.foldscope.com/?p=23169

File Edit View Favorites Tools Help

Introduction to Communi... course ICT Integration in ... Twitter Inbox Gmail Yahoo mail Facebook ESPN Cricinfo

Microcosmos

WHAT IS FOLDSCOPE? ASSEMBLY/USAGE TUTORIALS LOGIN

Dryyyyyyy grapesssss

Spider legs

i just took a small piece of sand and just a made slide of it and just viewed under a mini microscope (foldscope) was amazed it looked like a small honey comb...!!

i just placed a fish scale that too a pond fish i just cleaned it and i took a scale of it and made a slide,i felt like scale glittered like a silver

once my new shirt was torn while playing so i asked my mom to stich it ,as it was a red cloth,mom tooked a red thread so mind stucked to view thread under the foldscope.i took a small piece of short length and then i made into slide and placed it on red something different it was something like

Leaf's mid rib

Students Take off, No-stop flight. Our FOLDSCOPE leaders looking at Biology thro' different eyes, learning materials science! Physics, Chemistry, biology culminates as materials, nano....

11:33

Foldscope story- Outreach helps

- DHARAVI Dairy works !
- Keep eye on various outreach, track them if it serves our purpose
- Keep banging the doors
- Outreach to seek help and help
- Media helps to network and sieve
- Now we have started a community, and it will spread soon

- Where do we miss out?
- In identifying the resources?, targets? informing them and integrating them?
- Online courses on science communication (ISCOS)
- Science animations, films
- Blogs, worksheets, videos or short films on science can bring in creative people to our fold and give a new dimension to learning science.
- The minute this is done, we can expect some change to follow in the next few decades.
- A platform that integrates and takes it to the common people is what is needed.
- A movement where ideas and information can be disseminated in various languages using technology is long awaited.
- Time has come to unleash the power of science communication, that is waiting to be unfolded.
- And this is the right time to do it!

- *“Oh! All these years I thought of the Bordeaux Mixture as nothing more than a chemical and learnt the chemical formula by rote. Now I know that Bordeaux is in France where there were hundreds of vineyards. And that being the people’s main source of income, they desperately needed to solve pest infestation of grapes. PMA Millardet, a professor of botany, found that grape vines closest to the roads did not suffer the pest attacks, because grape farmers traditionally sprayed them with a mixture of copper sulphate and lime, to prevent passersby from eating them. He conducted several tests and found that that mixture could be used to contro pest. Hearing this story, I feel that science cannot be segregated from geography, economics or other streams of knowledge.”*
-

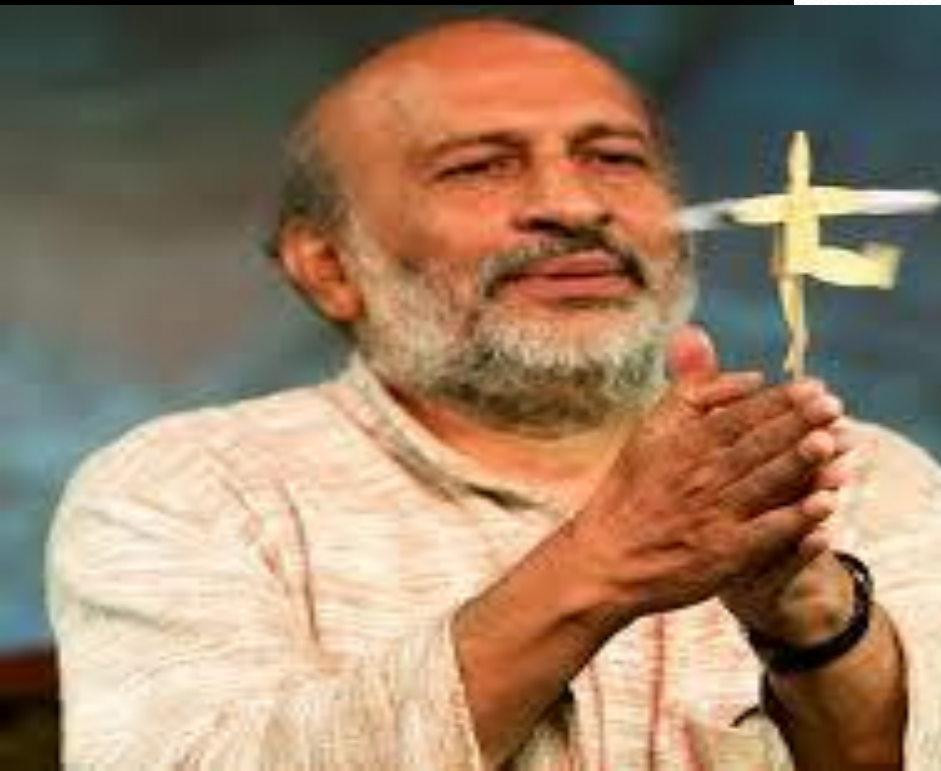
Can we accelerate this through

- NAAC recognition- RECOGNITION to teachers
- Small projects from UGC on science popularisation
- Drones- bird eye view- NAAC, autonomy commissions, ISO certificate reports can pool us together
- More work through print media, education supplements of mainstream magazines, translations, videos, short films
- Info dissemination of completed projects, needy areas
- Low cost books/ science magazines

I will be a hummingbird - Wangari Maathai (English)



"I will be a hummingbird"



And Many...