Innovation Hubs

- igniting minds for education & beyond

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Aspirations of a Nation

- India aspires to achieve a rapid, sustainable and inclusive growth to become a leading economic power in the near future.

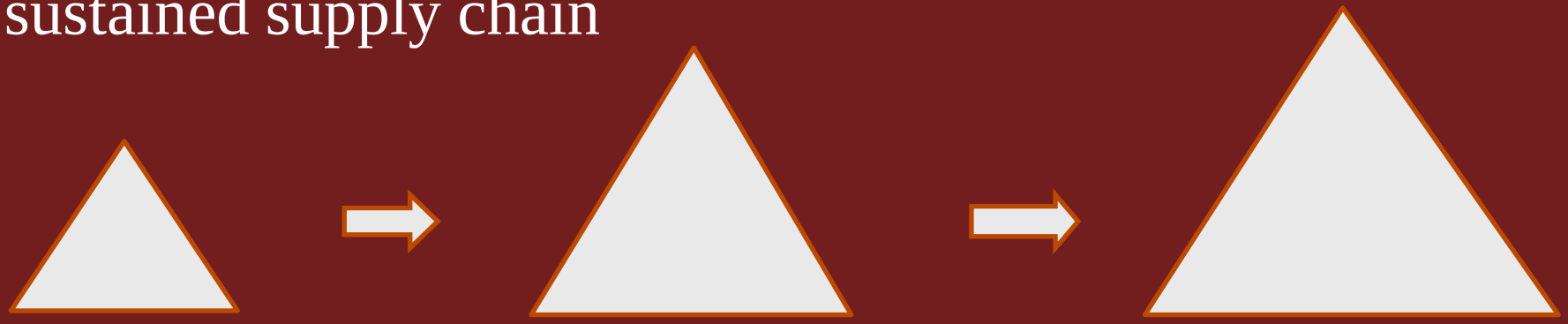
- The decade 2010 – 2020 has been declared as the *decade of Innovation.*

Looking Forward

- It is expected that most of the jobs created in the 21st century will be in S & T fields.
- Incompetent work force in S & T fields will surely weaken the global competitive edge.
- Adequate pool of quality Science teachers, researchers and innovators needed to sustain growth

The Human Resources Pyramid in S & T

To sustain and enhance a stable supply of trained and competent manpower at the top of the S & T human resources Pyramid the base of it need to be widened. This means more and more members of the society are to be engaged in S & T activities so as to maintain a sustained supply chain



However, despite its large population, India only provides 2.2% of the world total of researchers, and there is a steady flow of talent out of the country. Indeed, the Indian industrial sector is now complaining of a shortage of skilled and innovative personnel.

An innovative mindset among various sections of the society must be cultivated and nurtured to redress this issue.

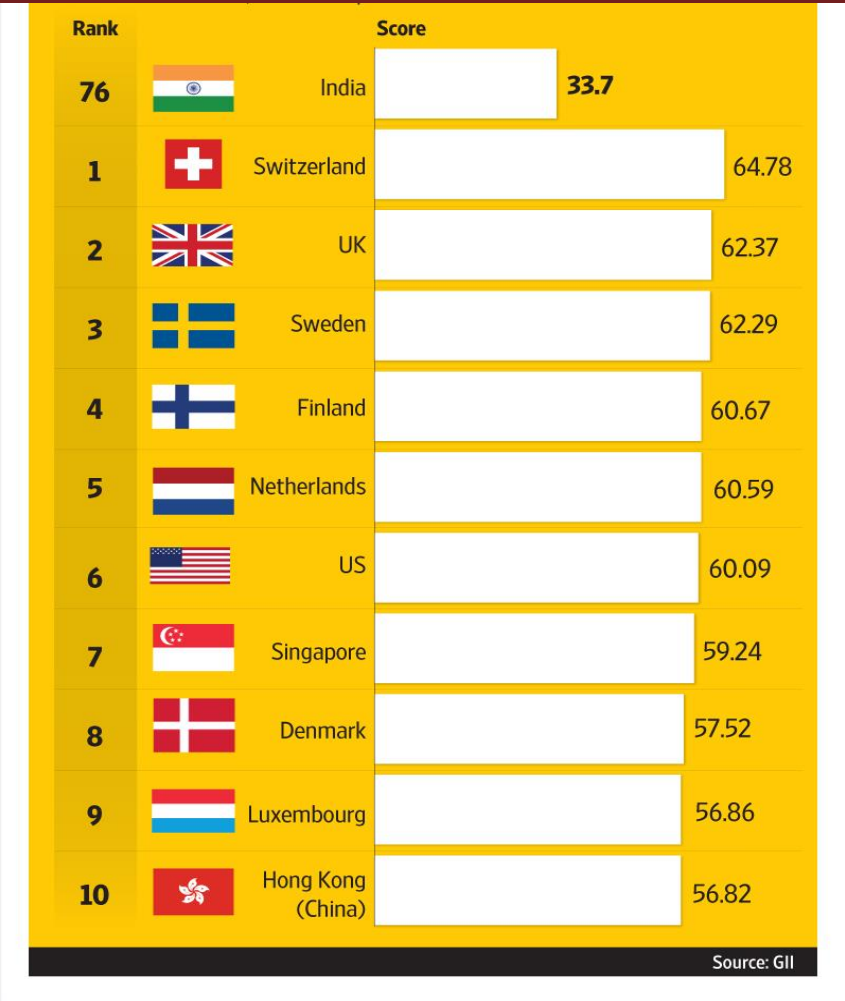
Global Innovation Index (GII)

The GII 2013 is calculated as average of two sub-indices.

The Innovation Input Sub-Index weighs key factors that contribute to a country's economy such as its institutions, human capital and research output, infrastructure, market sophistication, and business sophistication.

The Innovation Output Sub-Index captures actual evidence of innovation results based on knowledge and technology outputs and creative outputs.

GII - 2014



Study on 143 countries jointly by Cornell university, INSEAD and World intellectual property organisation - an agency of UNO

Science-Technology-Innovation policy vision

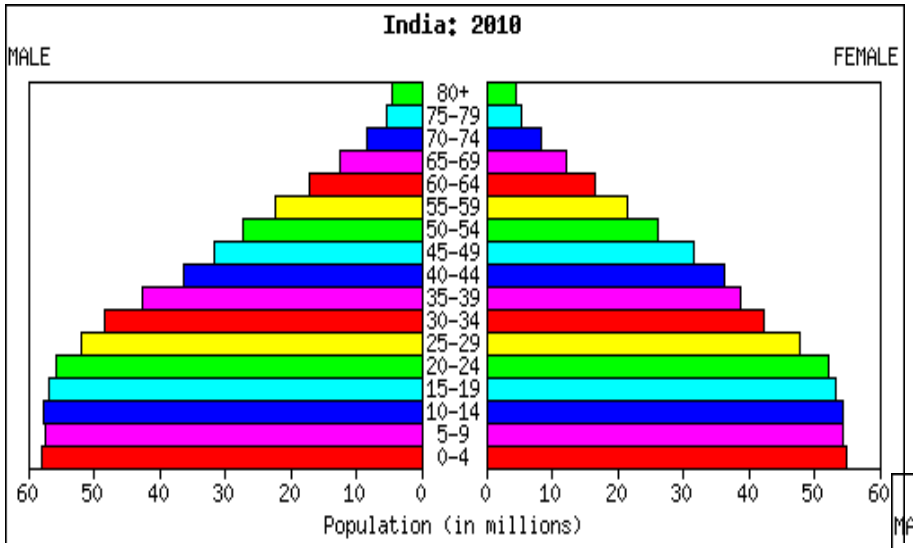
The guiding vision of the aspiring Indian S & T enterprise is to accelerate the pace of discovery and delivery of science-led solutions for faster, sustainable and inclusive growth

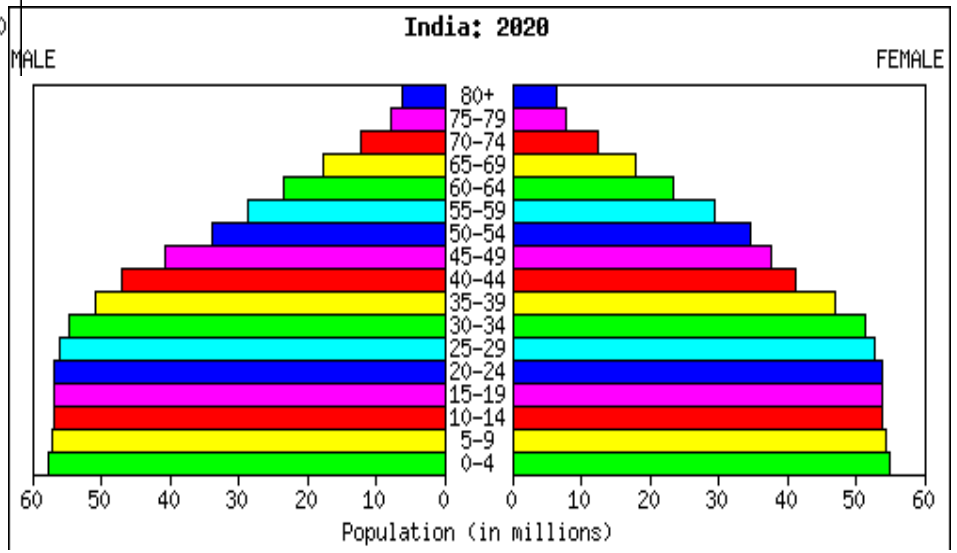
Points in favour

India has

- a large talent pool
- a favourable demographic pattern
- a sizable infrastructure for higher education, R & D and also a large Science Centre network

A land of young people





Science, Technology and Innovation for the people

Pressing challenges in various socio-economic sectors like

- *energy and environment*
- *food and nutrition,*
- *habitat, water and sanitation, affordable health care*
- *skill development and unemployment*

must be addressed

The new paradigm of innovation-led inclusive growth needs to ensure

- *Accessibility*
- *Availability and*
- *Affordability*

of solutions to a large section of our population

Policy targets

- promotion of *scientific temper* amongst all
- making careers in science, research and innovation attractive enough to young talents
- positioning India among the top five global scientific powers by 2020
- Establishing world class infrastructure for R & D
- Linking the STI agenda with the inclusive economic growth agenda of our country
- Creating avenues for higher investment from the private sector in R & D
- Creation of a strong national innovation system and supporting high-risk innovative R & D efforts

Policy targets

Promoting innovation

- through school science education reforms

- creating awareness of S & T issues in all sections of the society particularly to those outside the formal education system by enhancing support to science centres, science museums, planetaria, botanical and zoo gardens and other programmes that seek to popularise science and technology

- fostering excellence against global benchmarks and focusing on relevance to national challenges

- participating in 'big science' by creating high-end infrastructure

Evolving '*tinkering*' spaces in Indian Science Centres

Hobby centres and Hobby camps

Creative ability centres

Innovation Hubs

Concept

Innovation Hubs would be located in the existing science Centres, museums and non-formal education institutions that promote creativity & inspire innovations.

The hubs would not only promote more effective utilization of these centres, but would redefine their usage and role in fostering problem solving and project based learning and provide hands on / practical learning and engagement in the process of science, technology and innovation.

Interactivity *Outreach* *Innovation showcase*

Innovation Hubs in Science centres

Objectives

- To engage youth in creative hobbies and activities in Science & Technology
- To promote critical thinking and practical problem solving skills
- To cultivate skills that designers and manufacturers seek in their future workforce.
- To support transformation of innovative ideas into intellectual properties
- To recognise, encourage and facilitate local innovations

Innovation hub components

- Hall of Fame : Inventions and inventors : *mulimedia kiosks on landmark inventions and their inventors*
- Innovation resource centre : *broadband internet terminals providing access to e-journals and books on inventions and other invention related portals*
- Innovation Showcase *exhibition highlighting local inventions*


Innovation Hub
Hall of Fame


Innovation Resource
Chemistry

Innovation Hub components

- Innovation Laboratory :

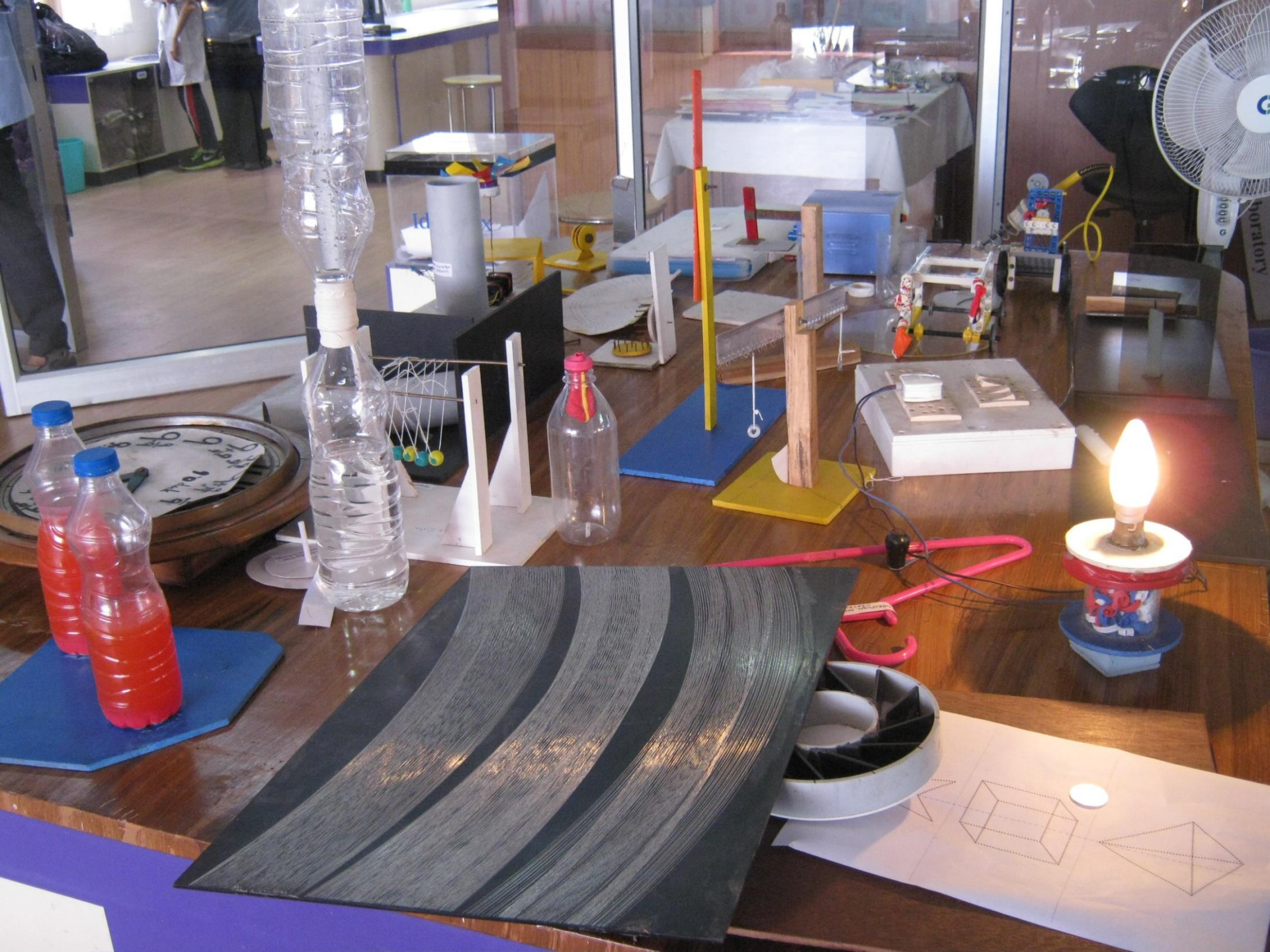
  facility for carrying out innovative activities, experiments and projects in a multi-disciplinary set up

- Technology Lab – Robotics & microprocessor programming facility :

  facility for innovative projects in robotics and microprocessor programming with potential for practical applications


KITCHEN WRAP
Idea Box


Laser-Oscilloscope
Saptarshi Soham Mahanta
Diganta Mukhopadhay
INNOVATION HUB – BITM, Kolkata
How this works??
Output on Screen




POWERCRAFT
SVICOL
SH
The Telegraph

Activities in the Innovation Lab

- Break and assemble : *learning to things with one's own hands*
- Build from scraps : *fabricating things from scrap and low-cost materials*
- *Idea Box* : *creating an innovative ideas bank; best ideas are taken for further development*


Kabad Se Jugad
(Build from scraps)
Thod Phod Jod
(Break & Remake)


Idea Box

Activities in the Innovation Lab

- Fabrication of Models/kits : *students translate their own innovative ideas into 3D models*
- Identification of real life problems and finding their solutions : *identification of problems of practical importance and work for their solutions in the form of products or processes.*
- Investigative projects : *guided research activities*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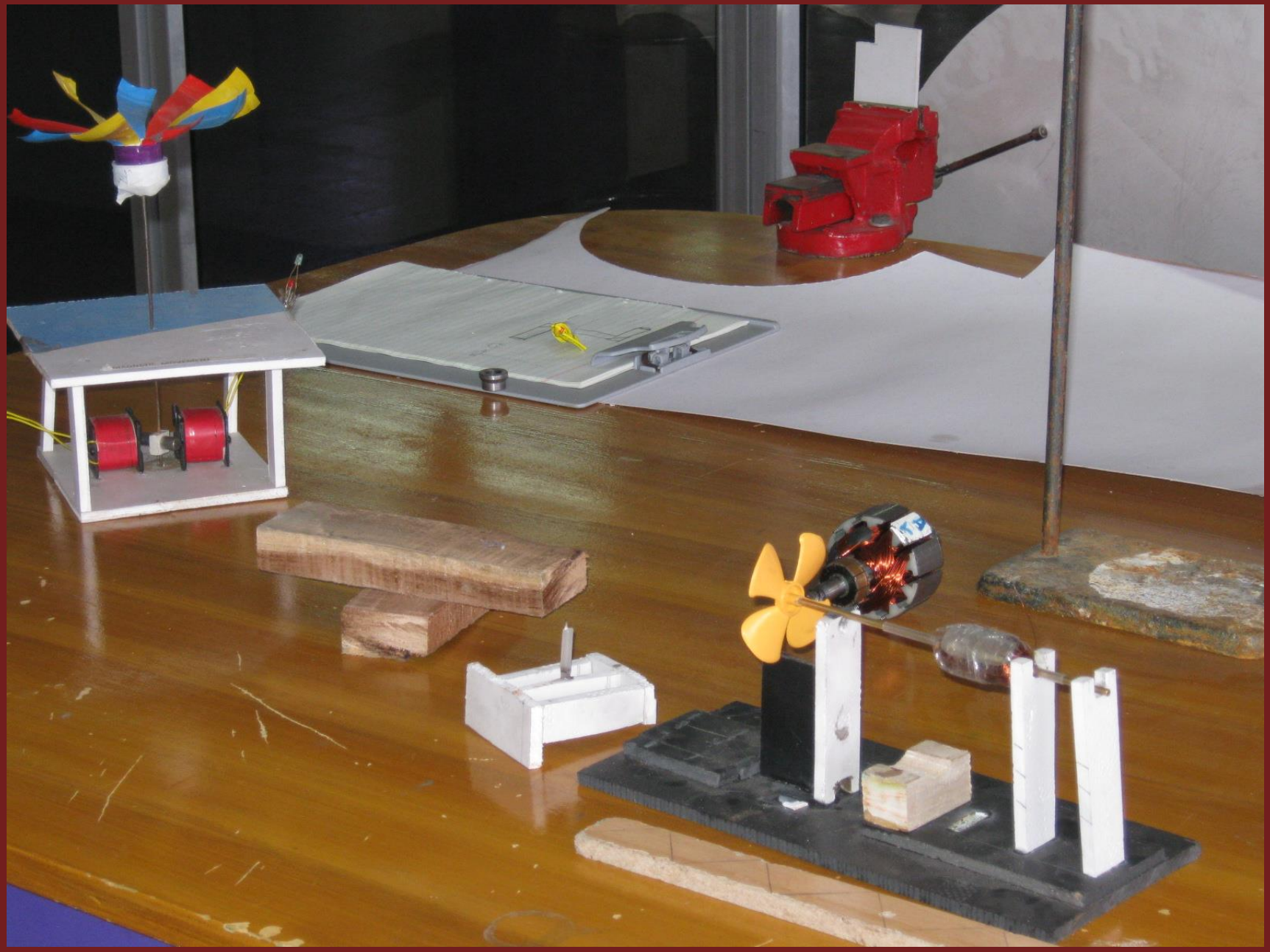
RIODIC TABLE
KITCHEN WRAP



Presentation and follow up

- Project work is to be documented daily and the results after completion of project are to be presented before peer groups and mentors
- Selected projects are posted on the science centre's website and shown in science fairs
- Selected projects with potential are assisted for getting intellectual property rights

Membership

- Individual membership :
  - *for school students of class VI to XII*
  - *for students of science and engineering colleges*
  - *Membership fee waived for deserving students*
- Institutional membership :
  - *for schools – annual fees Rs 3000 and batch size per session restricted to 35 students*
  - *for colleges – annual fees Rs 6000 and batch size per session restricted to 20 students*

Scheme for **P**romoting **I**nnovation, **C**reativity and **E**ngagement in **S**cience **(SPICES)**

www.ncsm.gov.in/?p=2920

Thank you