



I.I.T. Kanpur

RASHTRIYA AVISHKAR ABHIYAN



Learning outside Classroom

Presented at MHRD Meeting in Delhi on 16-11-2015

RAA at IITK

Resource Group



Content development

Contact with Govt schools



RAA Sessions



Resource Group



Dr H C
Verma, Phy



Dr. Anurag
Tripathi, ChE

+19 faculty members

+IIT K Students

Resource Group

Junior Science

Junior Maths

Senior Physics

Senior Chemistry

Senior Biology

Senior Maths

IIT K Students

Resource Group

Collaborations

Shiksha Sopan, NGO of IITK Community

Indian Association of Physics Teachers

Talent Development Council

Content Development

Short innovative experiments

Video Resources

Probing Questions for Discussion

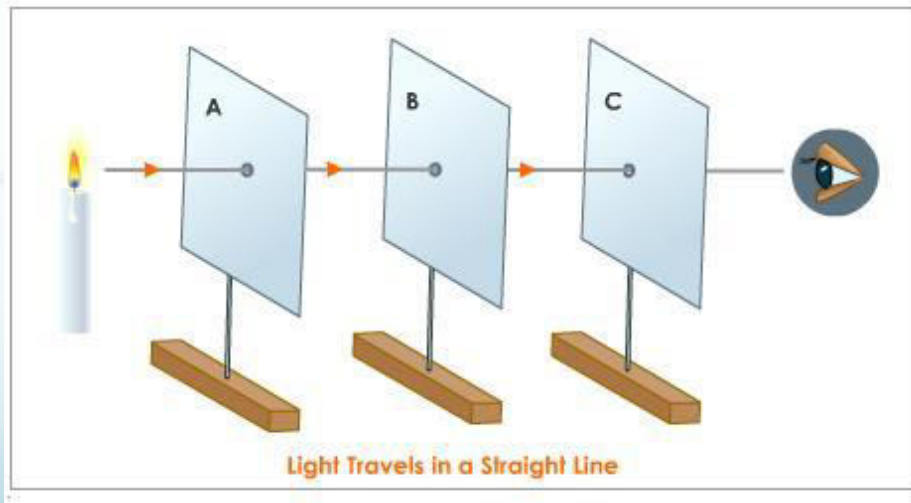
Arrange in training modules

Content Development

Short innovative experiments

Hundreds of experiments are developed

1. Light goes in straight Lines



2. Paper Microscope Activity

Content Development

Video Resources

**Open Source Science
e-library for the kids of class V-VI**

S.No.	Class	Chapter No.	Name of the Chapter
1.	5	1	Similarities between animals and plants
2.	5	2	Adaptabilities in animals and plants
3.	5	3	Seed and small plants
4.	5	4	Human Skelton
5.	5	5	Malnourishment and its effect
6.	5	6	Contagious disease and protection
7.	5	7	Soil Conservation
8.	5	8	Properties and use of Air
9.	5	9	Air Pollution
10.	5	10	Work, Force and Energy
11.	5	11	Simple Machines
12.	5	12	Shadow and Eclipse
13.	5	13	Computer
14.	6	1	Science in Daily life
15.	6	2	Neighborhood objects
16.	6	3	Separation of Objects
17.	6	4	Measurement
18.	6	5	Changes in Neighborhood
19.	6	6	Motion and Force
20.	6	7	Biological World
21.	6	8A	Composition & function of organisms Part I
22.	6	8B	Composition & function of organisms Part II
23.	6	9	Air
24.	6	10	Water
25.	6	11	Energy
26.	6	12	Computer

Content Development

Video Resources

Videos made at IITK under NCSTC project

http://www.youtube.com/watch_popup?v=mOBYOQLt5Gs&vq=medium

Periodic Table

http://www.youtube.com/watch_popup?v=i7PT-_FV-BI&vq=medium

Chemical Bonding

20 videos in this series for science at class6-9 level

Model Lectures Videos

https://www.youtube.com/watch?v=H7N_fVIAAnNY

Celsius & Fahrenheit

Several such lectures on elementary Mathematics available

Content Development

Probing Questions for Discussion

Why a syringe makes sound when piston is taken off?

Why does the coin come out of matchbox

When I apply a force on a wall, why does it not move?

प्रश्न १. किन्ही दो बलों के उदाहरण दें और प्रत्येक बल के लिए बताएं कि बल :

(i) किसने लगाया ?

(ii) किस पर लगा ?

(iii) किस दिशा में लगा ?

प्रश्न २. क्या किन्ही दो अलग-अलग वस्तुओं पर लगाने वाले बलों को जोड़कर उनका परिणामी निकालना उचित है?

प्रश्न ३. क्या किसी वस्तु को चलाये रखने के लिए परिणामी बल कि आवश्यकता होती है ?

प्रश्न ४. “यदि कोई वस्तु स्थिर है तो इसका अर्थ है कि उस पर कोई भी बल नहीं लग रहा है।” यह कथन सही है या गलत?

प्रश्न ५. क्या निर्जीव वस्तुएँ, सजीव वस्तुओं पर बल लगा सकती हैं?

प्रश्न ६. “एक मेज़ पर एक वस्तु पड़ी है। यह इसलिए संतुलन में है क्यो कि वस्तु द्वारा मेज़ पर लगाया गया बल और मेज़ द्वारा वस्तु पर लगाया गया बल परिमाण में बराबर और दिशा में विपरीत हैं।” यह कथन सही है या गलत?

प्रश्न ७. ऐसी परिस्थिति का वर्णन कीजिये जिसमें किसी भी वस्तु पर कोई भी बल ना लग रहा हो और अगर लग भी रहा हो तो वह अत्यंत अल्प परिमाण का हो।

प्रश्न ८. जब हम दीवार में गड़ी हुई किसी कील पर कोई भारी वस्तु लटका देते हैं तो क्या दीवार द्वारा कील पर लगाये जा रहे बल के परिमाण में कोई अंतर होता है ?

प्रश्न ९. यदि हम किसी दीवार को धक्का देते हैं तो इस बल के कारण दीवार में त्वरण क्यों नहीं उत्पन्न होता?

प्रश्न १०. फोटोग्राफिक कागज़ में सामान्य कलम से लिखना क्यों कठिन होता है?

प्रश्न ११. सूटकेस के नीचे पहिये क्यों लगाये जाते हैं?

प्रश्न १२. एक्सलरेटर दबाकर एक कार की चाल लगातार बढ़ाई जा रही है, एक चित्र बनाकर कार पर लगे सभी बलों को दिखाएँ, बलों की दिशा तीर के द्वारा एवं उनके परिमाण तीर कि लम्बाई द्वारा तथा बल लगाने वाली वस्तुओं के नाम भी लिखें।

प्रश्न १३. आप एक दंडे को पकड़ कर उर्ध्वदिशि स्थिति में उठाये हुए हैं, दाथ दवाग दंडे पर किन् दिशाओं

Content Development

Topic wise Training Module

Introducing Topic

Probing Question Paper, Pre Test

Short Experiments/videos

Experimental Activities

Content Development

Topic wise Training Module

Done for class 6-9 level

Force		Magnets	
Pressure		Currents	
Sound		Carbon	
Light		Gases	

Contact with Govt schools

IIT Kanpur
network

State Education
Department

Speed Breakers vs Accelerators

RAA sessions with IIT K Contacts



Class-5 Mathematics class in Anveshika Kanpur

RAA sessions with IIT K Contacts



Class-5 Mathematics class in Keshav Vatika

RAA sessions with IIT K Contacts



Session on Carbon, measuring flame temperature

RAA sessions with IIT K Contacts



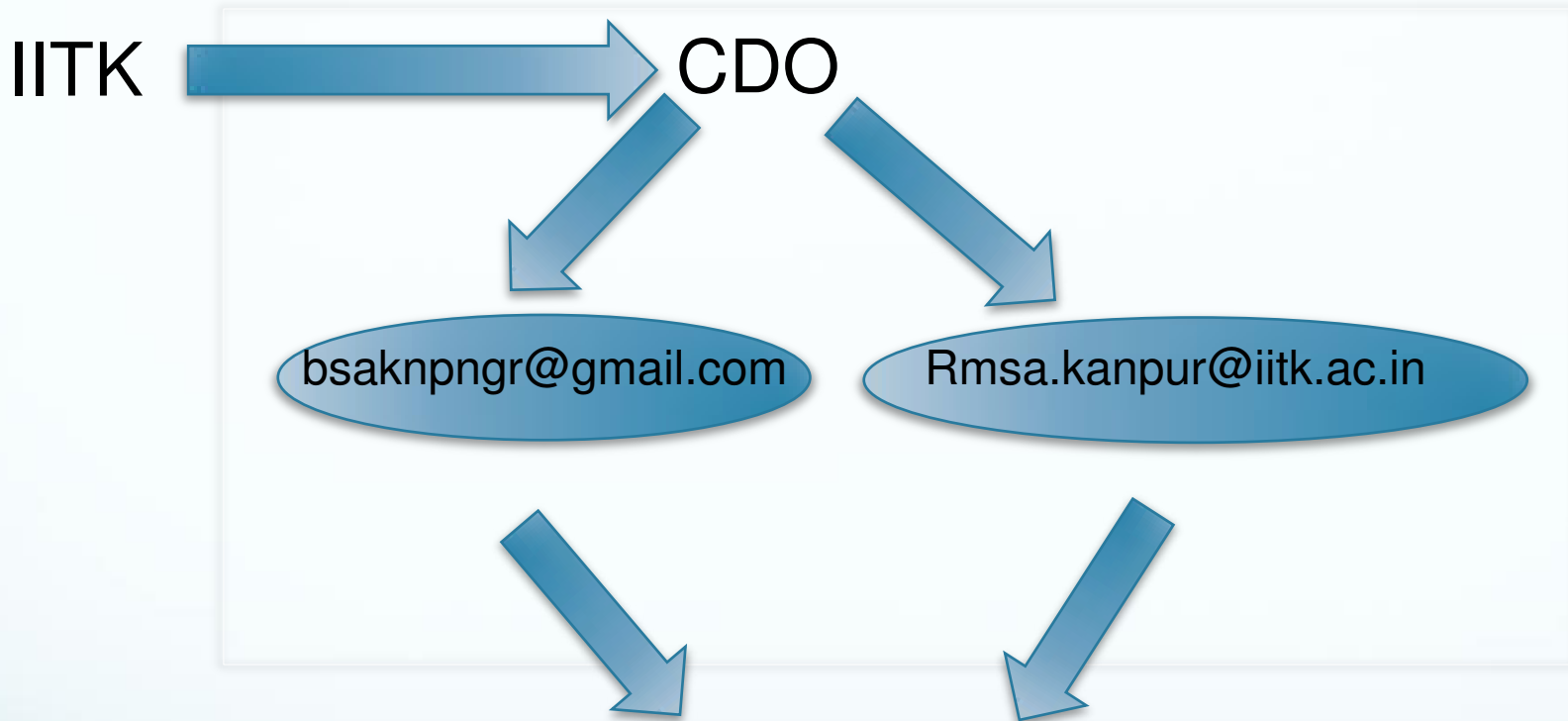
Session on Carbon, making Graphite model

RAA sessions with IIT K Contacts



Session on waves

RAA sessions with Govt Contacts



List of 20 JHS and 20 Inter colleges and
110 Science/Maths Teachers

LAUNCH on Children's Day Planned

RAA sessions with Govt Contacts

2nd November : email from iitk to BSA, RMSA, CDO to inform Teachers

13th November afternoon : BSA, RMSA phone calls to Principals

13th November Evening : Principals phone calls to teachers

14th November morning : 76 teachers come to IITK

(without knowing why they are asked to go there)

LAUNCH

without LUNCH

RAA LAUNCH, 14th November 2015



RAA LAUNCH, 14th November 2015

Background

- Target students in the age group of 6 - 18 years
- Execution of RAA will span across MHRD's schematic interventions of
 - Sarva Shiksha Abhiyan,
 - Rashtriya Madhyamik Shiksha Abhiyan in the Department of School Education & Literacy
 - Programmes and schemes of Department of Higher Education to encourage Science, Mathematics & Technology.



RAA LAUNCH, 14th November 2015



RAA LAUNCH, 14th November 2015



RAA LAUNCH, 14th November 2015



RAA LAUNCH, 14th November 2015



Group Meetings (Biology)

RAA LAUNCH, 14th November 2015



Group Meetings (Junior High School)

RAA LAUNCH, 14th November 2015



Group Meetings (Junior High School)

RAA LAUNCH, 14th November 2015



Group Meetings (Inter College Physics)

RAA LAUNCH, 14th November 2015



Group Meetings (Chemistry)

RAA LAUNCH, 14th November 2015



Group Meetings (Inter College Maths)

RAA LAUNCH, 14th November 2015



Closing session : Group Coordinators deliberating

What Next ?

- *Meeting with teachers once a month
- *RAA IITK website
- *Setting up an RAA project Lab at IITK
- *Encouraging Publication in Educational journals



???????

Head			Total
Development of project Lab (Physics, Chemistry, Biology, Maths)	100,000		100,000
Material to be given to teachers	Rs 100 per teacher per session	Rs 200 x 120 teachersX10 sessions	240,000
Refreshment to teachers	Rs 20 per teacher per session	Rs 20 x 120 teachersX10 sessions	24,000
Salary to Project coordinator	Rs 15,000 per month	Rs 15,000x12	1,80,000
Honorarium to two technical assistants	Rs 5000 per month	Rs 5000 x 2 x 12	1,20,000
Honorarium to resource persons	Two resource persons per session @Rs 2000 per session	Rs 2000x2x6x12	2,88,000
Honorarium to Project Coordinator	Rs 2500 per month	Rs 2500 x 12	30,000
Books from std 6 to 12			100,000
Conveyance for IITK faculty/ students/Coordinators to visit schools			50,000
Video recording and editing	Rs 10,000 per video	Rs 10,000 x 10 videos	1,00,000
Total Expense			12,32,000
Institute overhead	@15% of total expense		1,84,800
Grant requested			14,16,800

Fourteen Lacs Sixteen Thousand and Eight Hundred only.



H C Verma
Professor of Physics
Nodal Officer, RAA, IIT Kanpur

Forwarded



Indranil Manna
Director IIT Kanpur

A Letter without Address

IIT Kanpur offers all Academic
Resource Sharing with other
Mentoring Institutes

IIT Kanpur looks to other
Mentoring Institutes for newer
ideas

Happy RAA