

A Report on the **Salters' Chemistry Camp**

(3-Day Residential Camp for the High
School Students of Arunachal Pradesh)

January 29-31, 2019



Organised by
Department of Chemistry
Rajiv Gandhi University
Arunachal Pradesh



The **SALTERS'**
Institute

In association with
Royal Society of Chemistry
London W1J 0BA, United Kingdom
&
The Salters' Institute
London EC2Y 5DE, United Kingdom



CONTENTS

<i>Acknowledgements</i>	<i>ii</i>
<i>Organizing Committee</i>	<i>ii</i>

Part 1 PREFACE

1.1. Background	1
1.2. Objectives	1
1.3. Themes	1
1.4. Resource Persons	1
1.5. About the Sponsoring Agency	1
1.6. Budget	2

Part 2 SESSION WISE DETAILS

2.1. Inaugural Session	3
2.2. Technical Sessions	3
2.3. Valedictory Session	4

Part 3 OUTCOME OF THE PROGRAMME

3.1. Immediate implications in the context of Knowledge	5
3.2. Policy Implications	5
3.3. Other Implications (if any)	5

Part 4 ANNEXURES

Annexure I: Programme Schedule	6
Annexure II: List of Participants	7
Annexure III: Photographs	9
Annexure IV: Media Coverages	12

Salters' Chemistry Camp

(3-Day Residential Camp for the High School Students of Arunachal Pradesh)
January 29-31, 2019

Acknowledgments:

- i) Vice-Chancellor, Rajiv Gandhi University
- ii) The Royal Society of Chemistry, United Kingdom
- iii) The Salters' Institute United Kingdom

Organizing Committee:

Program Coordinator

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Bengaluru 560 055

Local Coordinator

Dr. Md. Harunar Rashid

Department of Chemistry
Rajiv Gandhi University, Rono Hills
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PART 1: Preface

1.1. **Background**

In 2015, The Salters' Institute and Royal Society of Chemistry, UK launched pilot camps at three universities and at one NGO in India (www.chemistrycamps.co.in). Salters' Chemistry Camps which is run at different parts of India under Royal Society of Chemistry – Dr. Yusuf Hamied Inspirational Chemistry Programme.

In Salters' Chemistry Camp, sixty 9th Standard students mostly from government or low funded schools participate in a three-day residential Chemistry Camp. The Camp enables the students to participate in the fun of Chemistry and motivate them to develop both awareness of and a long-term interest in the subject through an action-packed program which includes hands-on practical activities in University labs, exciting chemical demonstrations, chance to meet like-minded students including a taste of life staying in University hostels, also, importantly, the Camp activities delivered in local languages in addition to English.

1.2. **Objectives**

The objective of the Camps is to enable young people to explore the fun of Chemistry and help motivate them into developing a long term interest in this subject and hopefully study it further at University.

1.3. **Themes**

The Salters Chemistry Camp featured hands-on practical activities in the laboratory, exciting chemical demonstrations, chemistry magic, and motivational lecture.

1.4. **Resource Persons**

The resource persons for the Camp were:

- **Prof. Pannalal Goswami**

Retd. Professor

Cotton University (formerly Cotton College), Guwahati

- **Dr. Rajesh Chakrabarty**

Associate Professor

Department of Chemistry

Rajiv Gandhi University, Rono Hills

Doimukh 791 112, Arunachal Pradesh

1.5. **About the Sponsoring Agency**

The Salters' Chemistry Camps, which were founded in 1998, were put into abeyance after the 2015 season. During the 18 years that they ran, a total of 185 Camps took place, hosted by 15 different Universities across all parts of the UK and 9,500 students have had the opportunity to participate. The model now forms part of a project in India run in collaboration with the Royal Society of Chemistry (RSC) to deliver a joint five year "Inspirational Chemistry Programme". This project has been sponsored by Yusef Hamied, a leading Indian philanthropist and pioneer in the pharmaceutical industry. The RSC and the Salters' Institute hope to enhance the

skills and knowledge of Indian Chemistry teachers and inspire students to study Chemistry at University by applying their own expertise in education and combining this with the experience of partners in India. During the five year program, it is planned that at least 1650 students will participate in around 30 Camps across India.

1.6. Budget

The total budget of the three-day camp was **₹ 4,25,403**. The Royal Society of Chemistry provided a sum of **₹ 4,00,403**. A sum of **₹ 25,000** was received from Rajiv Gandhi University for organizing the camp.

PART 2: Session Wise Details

2.1. Inaugural Session

About 68 participants from different Government School of Papumpare district of Arunachal Pradesh registered for participation in the camp. All of them attended the inaugural session along with Deans of various Faculties; Heads of various Departments of this University attended the inaugural session.

In the inaugural session of the event, Dr. Rajesh Chakrabarty, Head, Department of Chemistry welcomed the participants from different schools and other invitees. Prof. Saket Kushwaha, Vice-Chancellor of the university said that the camp is aimed at reaching out to the less privileged but bright young minds of our society who have the zeal to learn and know key scientific concepts through a wonderful and magical world of chemistry. He further encouraged the students of this region to make the best of this opportunity to interact with RGU scientists to learn more about science. The Program Co-coordinator, Mrs. Bhakti Dhamdhere introduced the course details to the students. This was followed by a vote of thanks proposed by Dr. Md. Harunar Rashid, Local Coordinator of the program.

2.2. Technical Sessions

During this three days program, the students performed various experiments in the camp such as turning glue into slime and into bouncy ball, setting up Landolt clock and discovering most fascinating chemical reactions, growing crystals from table salt, sugar, Epsom salts, alum, and potassium nitrate, investigated how water interacts with hydrogels and observe the interaction, produced six different colored solutions red, orange, yellow, green, blue and violet from combination of universal indicator and chemicals.

In addition to these laboratory-based hands-on experiments, Prof. Pannalal Goswami, a retired professor of Cotton University, Guwahati (formerly Cotton College, Guwahati) enthralled the students with Chemistry Magic Show. Dr. Rajesh Chakrabarty, HoD, Department of Chemistry delivered a popular talk on the wonderful world of chemistry to germinate the quest for knowledge and encourage the students to take up a career in science. Students were also shown documentaries on hornbill conservation and the impact of social media on students in a session conducted by Mr. Moji Riba of the Department of Mass Communication to sensitize the young minds of these pressing issues in Arunachalee society. Ph.D. Scholars of the Department of Chemistry conducted Science Quiz for the participants.

On the last day of the Salters' Chemistry Camp at RGU, students were taken for an educational tour of the RGU's Botanical Garden and Rajiv Gandhi Museum of Fishes Fishery and Aquatic Ecology Lab of the Zoology Department. Retd. Professor of North Bengal University and visiting Professor A. P. Das (Plant Taxonomist) and Ph.D. Scholars of Department of Botany guided the students within the garden and made them familiar by giving them a general idea about plant groups and diversity of resources. Plants like *Gnetumula* (Gymnosperm), *Cinnamomumtamala*,

Phlogacanthus thyrsiformis, *Piper mullesua*, *Dendrobium moschatum*, *Mesua ferrea*, and *Magnolia hodgsonii* were made familiar to the students. Museum team member Lakpa Tamang explained to the students in detail about the 50 species of fishes found in Arunachal Pradesh.

2.3. Valedictory Session

The 3-day camp concluded with a valedictory program chaired by Prof. P. K. Kalita, Dean of Faculty of Basic Sciences, Rajiv Gandhi University. In the valedictory program, each participating student was asked to give a short feedback on the entire program. Dr. Md. Harunar Rashid, Local Coordinator of the Camp thanked the schools and the parents of the students for sending their kids to this program. Tadar Yanya, a student from Naharlagun Govt. Higher Secondary School expressed her gratefulness by thanking the entire unit of Salters and RSC as well as the MSc students and Ph.D. scholars for organizing such an engaging program. Students of MSc 4th Semester of the Chemistry department also projected the timeline photographs of 3 days Chemistry Camp.

PART 3: Outcome of the Programme

3.1. Immediate Implications in the Context of Knowledge

It is our belief that a memorable experience that involves active participation in exciting and challenging experiments, coupled with the development of mentoring relationships with enthusiastic graduate students, has the potential to positively impact the future educational and career decisions of the young students who participated in this program.

3.2. Policy Implications

Although there is no such policy implication per se, it is our belief that students can use more conceptions and statements on chemistry, and they can associate them with daily life in a better way after the science camp.

3.3. Other Implications (if any)

NA

PART 4: Annexures

Annexure 1: Programme Schedule

The Salters' Chemistry Camp at Rajiv Gandhi University
 (3-Day Residential Camp for the High School Students of Arunachal Pradesh)
January 29-31, 2019
Venue: Department of Chemistry & Mini Auditorium, RGU

	7:45 am	9:00-11:00 am	11:00-11:30 am	11:30-12:30 pm	12:30-1:15 pm	1:15-2:45 pm	2:45-3:15 pm	3:15-4:45 pm	4:45-5:00 pm	5:00-6:30 pm	6:30-7:30 pm	
29.01.2019 (Tuesday)		Registration & Inaugural Programme	Snack	Briefing on Laboratory safety (Lab Coats and Safety Specs to be issued)	Lunch	Colour Creation (Blue / Green / Orange)	Break	Crystallisation (Blue / Green / Orange)	Snack	Movie Screening		
		Ice Breaker Activity & Group Photo				Crystallisation (Purple / Red / Yellow)		Colour Creation (Purple / Red / Yellow)				
30.01.2019 (Wednesday)	Breakfast	Forensic Challenge (Blue / Green / Orange)	Snack	Invited Talk (Dr. Rajesh Chakrabarty)	Lunch	Science Magic Show (Prof. P. Goswami)	Break	Clock Reactions (Blue / Green / Orange)	Snack	Science Quiz	Dinner	
		Clock Reactions (Purple / Red / Yellow)						Forensic Challenge (Purple / Red / Yellow)				
31.01.2019 (Thursday)	Breakfast	Slime! (Blue / Green / Orange)	Snack	University Campus Tour	Lunch	Hydrogel Investigation (Blue / Green / Orange)	Break	Finale and Prize Distribution Ceremony	Snack	<i>Campers sign out and Depart by 5:00 pm</i>		
		Hydrogel Investigation (Purple / Red / Yellow)				Slime! (Purple / Red / Yellow)						

Annexure 2: List of Participants

Sl. No.	Name of student	Name of the School
1.	Likha Yaya	Government Higher Secondary School, Arunodaya, Itanagar
2.	Satam Yapi	Government Higher Secondary School, Arunodaya, Itanagar
3.	Keji Tanu	Government Higher Secondary School, Arunodaya, Itanagar
4.	Mamoni Sarkar	Government Higher Secondary School, Arunodaya, Itanagar
5.	Kailash Chetry	Government Higher Secondary School, Arunodaya, Itanagar
6.	Debiya Laya	Government Higher Secondary School, Doimukh
7.	Maga Yajir	Government Higher Secondary School, Doimukh
8.	Tana Zemin Tara	Government Higher Secondary School, Doimukh
9.	Techi Nane	Government Higher Secondary School, Doimukh
10.	Prity Brahma	Government Higher Secondary School, Doimukh
11.	Taug Tamang	Government Higher Secondary School, Doimukh
12.	Anusha Biswakarma	Government Higher Secondary School, Doimukh
13.	Tarak Ami	Government Higher Secondary School, Ganga, Itanagar
14.	Taba Nimpu	Government Higher Secondary School, Ganga, Itanagar
15.	Techi Ampi	Government Higher Secondary School, Ganga, Itanagar
16.	Kinu Centu	Government Higher Secondary School, Ganga, Itanagar
17.	Nayasum Talu	Government Higher Secondary School, Ganga, Itanagar
18.	Niri Yani	Government Higher Secondary School, Ganga, Itanagar
19.	Tekiang Tana	Government Higher Secondary School, Ganga, Itanagar
20.	Niri Yasi	Government Higher Secondary School, Ganga, Itanagar
21.	Suman Biswas	Government Higher Secondary School, Ganga, Itanagar
22.	Nangmaithem B. Chanu	Government Higher Secondary School, Ganga, Itanagar
23.	Bengia Ashik	Government Higher Secondary School, Naharlagun
24.	Khyoda Yakum	Government Higher Secondary School, Naharlagun
25.	Tadar Yania	Government Higher Secondary School, Naharlagun
26.	Byabang Yania	Government Higher Secondary School, Naharlagun
27.	Bishal Barman	Government Higher Secondary School, Naharlagun
28.	Pai Tolu Camir	Government Higher Secondary School, Naharlagun
29.	Simon Tana	Government Higher Secondary School, Naharlagun
30.	Goi Dirchi	Government Secondary School, Pachin
31.	Markio Tana	Government Secondary School, Pachin
32.	Patey Roslyn	Government Secondary School, Pachin
33.	Gangte Nassum	Government Secondary School, Pachin
34.	Tadar Chanu	Government Secondary School, Chimpu

35.	Chera Tanang	Government Secondary School, Chimpu
36.	Aisha Sorang	Government Secondary School, Chimpu
37.	Kipa Sagung	Government Secondary School, Chimpu
38.	Devi Yangfo	Government Secondary School, Chimpu
39.	Hibung Yazar	Government Secondary School, Mani, Doimukh
40.	Haye Anthony	Government Secondary School, Mani, Doimukh
41.	Ngurang Tarang	Government Secondary School, Mani, Doimukh
42.	Kara Jangrang	Government Secondary School, Mani, Doimukh
43.	Nabam Sinda	Government Secondary School, Mani, Doimukh
44.	Taba Mecha	Government Secondary School, Mani, Doimukh
45.	Likha Tegi	Government Secondary School, Nirjuli
46.	Nabam Anam	Government Secondary School, Nirjuli
47.	Koshi Welly	Government Secondary School, Nirjuli
48.	Kipa Taja	Government Secondary School, Nirjuli
49.	Yapi Tadar	Government Secondary School, Nirjuli
50.	Neelam Kanya	Government Secondary School, P sector, Itanagar
51.	Tadar Harish	Government Secondary School, P sector, Itanagar
52.	Tai Abash	Government Secondary School, P sector, Itanagar
53.	Takar Yajar	Government Secondary School, P sector, Itanagar
54.	Gyati Kari	Government Secondary School, P sector, Itanagar
55.	Anu Pado	Government Secondary School, P sector, Itanagar
56.	Manoj Kumar Rawat	Government Secondary School, RGU campus, Doimukh
57.	Biplob Mudoi	Government Secondary School, RGU campus, Doimukh
58.	Jumna Lomdak	Government Secondary School, RGU campus, Doimukh
59.	Tana Kaain	Government Secondary School, RGU campus, Doimukh
60.	Jeda Kamsar	Government Secondary School, RGU campus, Doimukh
61.	Nabam Sumsum	Government Secondary School, RGU campus, Doimukh
62.	Puskar Sarkar	Government Secondary School, RGU campus, Doimukh
63.	Nanu Limbu	Government Secondary School, RGU campus, Doimukh
64.	Kumar Anuj	Kendriya Vidyalaya, NERIST Campus, Nirjuli
65.	Pragya Bhowmik	Kendriya Vidyalaya, NERIST Campus, Nirjuli
66.	Parishmita Bora	Kendriya Vidyalaya, NERIST Campus, Nirjuli
67.	Farhan Rashid	Kendriya Vidyalaya, NERIST Campus, Nirjuli
68.	Goli Bam	Vivekananda Kendra Vidyalaya, Nirjuli

Annexure 3: Photographs



Inaugural Session (L – R): Dr. Md. Harunar Rashid (Programme Coordinator, Salters' Camp); Prof. Saket Kuswaha (Vice Chancellor, RGU); Prof. Tomo Riba (Registrar, RGU) & Dr. Rajesh Chakrabarty (HoD, Department of Chemistry, RGU)



Hands-on experiment performed by the school students in the Laboratory



Participants of the Salters' Camp with the instructors and faculty members of Department of Chemistry,
RGU



Prof. Pannalal Goswami entertaining the students with his magic show



Visit of the participants of the Salters' Camp to the Botanic Garden of the Rajiv Gandhi University led by noted taxonomist Prof. A. P. Das, Department of Botany, RGU

Annexure 4: Media Coverage

THE DAWNLT POST

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RGU to host Chemistry Camp

RONO HILLS, Jan 27: The department of Chemistry, Rajiv Gandhi University (RGU) here is all set to host a three-day residential Chemistry camp for high school students. The camp, which will be held from January 29 to 31 at the University's campus here, will be participated by 60 students from Papum Pare district. The event is being organized by the Royal Society of Chemistry (RSC), London and The Salters' Institute, London. With the initiative, the RSC and the Salters' Institute hopes to enhance the skills and knowledge of Indian chemistry teachers and inspire students to study Chemistry at University by applying their own expertise in education and combining this with the experience of partners in India. The free three-day hands-on practical chemistry camp will ensure that the participating students experience a taste of chemistry in a fun way. The students during the camp will participate in a variety of practical activities run in the department's lab. As part of the experience, they will also interact with senior researchers in chemistry at the University and also work on exciting chemical reactions and interact with peers from other schools. With film screenings, science quizzes, illustrated talks and a guided tour of the RGU campus, the event hopes to kindle a quest for knowledge in the young minds.

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Salters' Chemistry Camp

3-Day Residential Camp for the High School Students of Arunachal Pradesh

Arunachal: RGU to host Salters' Chemistry Camp

January 27, 2019 Arunachal, Chemistry Camp, Rajiv Gandhi University, RGU, Salters' Chemistry Camps

Salters' Chemistry Camps founded in 1998, are residential camps that run for 3 days and 2 nights for students of 9th standard from government, underprivileged and aided schools.

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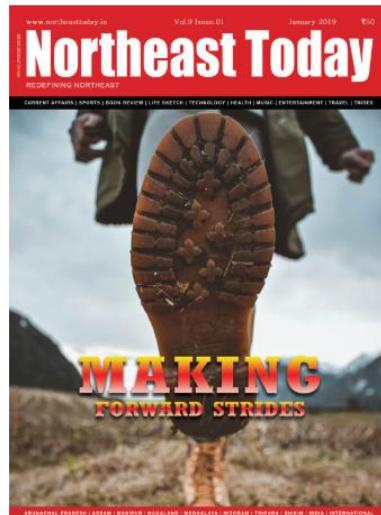
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Further Links to Media Reports on the Event

1. RGU to host Salters' chemistry camp | The Arunachal Times

<https://arunachaltimes.in/index.php/2019/01/28/rgu-to-host-salters-chemistry-camp/>

2. Arunachal: RGU to host Salters' Chemistry Camp | Arunachal24.in

<http://arunachal24.in/arunachal-rgu-to-host-salters-chemistry-camp/>

3. RGU to host Salters' Chemistry Camp | Arunachal Observer

<https://arunachalobserver.org/2019/01/28/rgu-host-salters-chemistry-camp/>

4. RGU to host Chemistry Camp | The Dawnlit Post - Rise with the Post

<https://thedawnlitpost.com/rgu-to-host-chemistry-camp/>

5. RGU to host UK-backed Salters' chemistry camp - The Arunachal Pioneer

<http://www.theearunachalpioneer.com/Cities/Arunachal-Pradesh/RGU-to-host-UK-backed-Salters-C3-A2-C2-80-C2-99-chemistry-camp/9/11/3914/f/>

6. Salters' Chemistry Camp begins | Arunachal Observer

<https://arunachalobserver.org/2019/01/30/salters-chemistry-camp-begins/>

7. Chemistry camp begins at Rajiv Gandhi University - The Sentinel

<https://www.sentinelassam.com/news/chemistry-camp-begins-at-rajiv-gandhi-university/>

8. Salters' chemistry camp concludes | The Arunachal Times

<https://arunachaltimes.in/index.php/2019/02/02/salters-chemistry-camp-concludes/>

9. Salters' Chemistry Camp concludes - Eastern Sentinel | News

<http://www.easternsentinel.in/news/state/salters-chemistry-camp-concludes.html>

10. Itanagar: Salters' Chemistry Camp at RGU concludes | Arunachal24.in

<http://arunachal24.in/itanagar-salters-chemistry-camp-at-rgu-concludes/>

11. Salters' Chemistry camp concludes | The Dawnlit Post - Rise with the Post

<https://thedawnlitpost.com/salters-chemistry-camp-concludes/>

12. Salters' Chemistry camp concludes at Rajiv Gandhi University-The Sentinel

<https://www.sentinelassam.com/news/salters-chemistry-camp-concludes-at-rajiv-gandhi-university/>

13. Three day Salters' Chemistry camp concludes at RGU | Arunachal Reflector

<https://www.arunachalreflector.in/three-day-salters-chemistry-camp-concludes-at-rgu/state/>