Monthly E-Publication

August 2025

CSIR Jigyasa Newsletter

68	8598	579	29
Programmes Conducted	Students Benefitted	Teachers Benefitted	Labs Covered

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Eminent Scientist Column

Turning Chemistry into a Continuous Adventure

When most people think of chemistry, they imagine colorful liquids in flasks, bubbling reactions, or safety warnings from teachers. Traditionally, chemical processes are done in batches – you mix the ingredients, run the reaction, stop, and clean up before starting again. While this works for small experiments, it becomes slow and costly when industries need large amounts of medicines, perfumes, or materials.

Dr. Amol Kulkarni, Chief Scientist at CSIR-National Chemical Laboratory (NCL), Pune, is transforming this old way of working. He has pioneered continuous flow chemistry in India, where special machines called flow reactors allow chemicals to 'flow' non-stop, just like chocolates moving on a conveyor belt. This shift from batch to flow makes chemical manufacturing faster, greener, and safer – a true game-changer for industries worldwide.

From Lab to Industry – Small Reactors, Big Impact:

Dr. Kulkarni's team designs compact flow reactors that are not giant machines but small, affordable, and highly efficient. Many of their designs have been patented internationally and are already in use by over 350 industries worldwide – from pharmaceutical companies making life-saving drugs to firms producing dyes, perfumes, and specialty chemicals.

Reactions that once took several hours in massive reactors can now finish within minutes in a device 1,000 times smaller!

For example:

- An exothermic reaction for making a fine chemical intermediate that earlier required 8–24 hours can now be done in just 5 minutes.

Dr. Amol Kulkarni
Chief Scientist and Head, Chemical Engineering and Process Development Division, CSIR-NCL
aa.kulkarni@ncl.res.in

- Medicines for nerve pain and diabetes can be synthesized with higher selectivity and without harmful solvents.
- Silver nanowires, crucial for touchscreens and electronics, are produced consistently and at industrial scale through his continuous process

Creative Problem Solving

Flow reactors are not always simple to handle – sometimes solids clog the tiny channels like a blocked straw. Instead of avoiding such challenges, Dr. Kulkarni and his students studied them deeply and developed clever solutions:

- Special mixing methods using impinging jets that prevent clogging.
- Reactor designs that can even work solvent-free, helping with green manufacturing.
- Novel devices like screw reactors and jet systems that can handle large-scale production of tough materials, including those used in rocket propellants.
- These innovations not only solve engineering problems but also reduce waste, use less energy, and minimize environmental harm.

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Eminent Scientist Column

Turning Chemistry into a Continuous Adventure

Science with Purpose

Behind every industrial solution lies strong science. Dr. Kulkarni has contributed fundamental insights in three major areas:

- Pressure Equalization – ensuring smooth flow in multiple reactor channels.
- Coupling Chemistry with Fluid Dynamics – designing systems where mixing, heating, and reacting happen optimally.
- Scaling Nanomaterials – connecting tiny processes inside reactors to large-scale usable products.

His research shows how theory and practice can work hand in hand to create technologies that change lives.

Impact Beyond the Lab

As a scientist in CSIR (Council of Scientific and Industrial Research), Dr. Kulkarni strongly believes that research must benefit not just journals, but industry and society.

His work has:

- Helped hundreds of companies switch from batch to continuous processing.
- Reduced waste and pollution through greener chemical methods.
- Brought significant royalties and recognition to CSIR and NCL.
- Trained hundreds of young scientists and industry professionals in modern chemistry techniques.
- For his outstanding contributions, he has received many awards, including the Shanti Swarup Bhatnagar Prize (2020), India's highest science honor.

Lessons for Young Minds

The work from Dr. Kulkarni's lab touches almost every part of daily life – from the you take, to the perfume your friend wears, to the touchscreen you swipe, and even the rocket fuel powering satellites.

He believes curiosity and creativity are the starting points of great discoveries. His advice to students:

Five Key Takeaways for Young Minds:

1. Think Flow, Not Batch — Continuous processes can revolutionize manufacturing.
2. Small Can Be Mighty — Compact reactors can outperform giant equipment.
3. Marry Theory with Practice — Fundamental science drives real-world innovation.
4. Sustainability is Key — Greener processes are better for the planet and business.
5. Curiosity Fuels Progress — Always ask, "Is there a better way?"

Looking Ahead

Dr. Kulkarni envisions a future where chemical factories are modular, compact, and intelligent — producing the right products at the right time with minimal waste. By blending imagination with engineering, he shows us how science can fuel progress for both industry and society.

For young readers, Dr. Kulkarni's journey is proof that science is not just about experiments in flasks, but about solving real-world problems and shaping a sustainable future. His mantra: Creativity plus science can make our world cleaner, greener, and better.

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Student Column

My experience of one day as scientist in NCL- Pune

Tanmayee Ghumade (class IX)
Reliance Foundation School Lodhivali

On 25th July 2025, I had the incredible opportunity to visit the CSIR–National Chemical Laboratory (NCL) in Pune as part of the One Day as Scientist (ODAS) programme under the CSIR Jigyasa initiative. I experienced far beyond my expectations. It was a journey into the world of research, discovery, knowledge expansion, and innovation that has left a lasting mark on my mind.

Our day began in the auditorium with a wonderful interactive session by Dr. Wafia Masih, who spoke passionately about why becoming a scientist is such a meaningful choice.

The sessions throughout the day were both educational and inspiring. One memorable session was on the role of Artificial Intelligence in chemical synthesis. The talk was fascinating, which ended with a humorous reminder: “Trust, but first verify GPT before using.” That made us all smile, while also teaching an important lesson about using technology wisely. We also learned about an eco-friendly method for immersing Plaster of Paris (PoP) Ganesh idols, demonstrating how science can solve environmental problems in practical ways.

This programme was not just about observing science - it was about living it for a day. I left NCL with more than just facts and knowledge; I left with inspiration, motivation, and the confidence to dream bigger.

From Curiosity to Clarity: A journey that brought out the researcher in me!

Arjit Amol More (class VIII)
Swami Vivekanand High School,
Chembur, Mumbai

I visited CSIR – NCL on July 24, 2025 under the CSIR Jigyasa “One Day As a Scientist” week.

Our day started with the interactive session by Dr. Wafia Masih who explained the role and importance of scientists in today’s world. Next was a workshop on DNA, where we learnt how trans-genetics is used to make pest-resistant cotton and allergy-free crops. We visited a DNA sequencing lab.It was my first time so close to such high-tech equipment, making me realise the precision and patience science demands. Then there was a lecture on “Insects: Friend or Foe” where the rapid evolution of insects was explained, and how they affect food security by spreading to new regions.

Throughout the day, I felt I had stepped into a new scientific world. I realised science isn’t just white coats and chemicals, it is curiosity, problem-solving, and helping others. Meeting real scientists and seeing research showed me science is alive all around us.

The Jigyasa programme gave me this rare experience. I returned with ideas, dreams, and the hope to one day come back to NCL not as a visitor, but as a scientist creating change and making the nation proud.

Jigyasa Mentor / Nodal Column

Inspiring Minds, Shaping Futures: My Journey as a Jigyasa Nodal

"Curiosity fuels knowledge, resilience shapes attitude, questions sharpen clarity and humility guides discovery."

My journey as the Jigyasa Nodal at CSIR-National Chemical Laboratory (CSIR-NCL), Pune, is grounded to make **science exciting, hands-on, and accessible for all** students. Through the Jigyasa Program, I have worked to transform science learning from textbook theory into a living adventure, engaging thousands of students, parents, and teachers across Maharashtra and India every year.

CSIR Jigyasa initiated in 2017 and connects more than 10 lakhs students through thousands of lab visits, experiments, and creative workshops in different CSIR laboratories in India. When classes moved online during the pandemic, I helped launch the **Jigyasa Virtual Lab**, a multilingual portal where students watch real experiments, join quizzes, and interact with scientists, thus bringing science to every corner, rural and urban alike.

Through feedback from families and schools, I know first-hand how activities like DNA extraction, robot-building, and environmental projects spark excitement and curiosity. By building partnerships with premier institutes and recruiting enthusiastic interns, our outreach now blends physical workshops and digital content, from "One Day as a Scientist" sessions to Nano Jatha and robotics designed for all backgrounds, free, under the sponsorship of CSIR Jigyasa.

Collaboration is key: working with scientists, educators, and student interns strengthens our efforts and sets benchmarks in science

Dr. Wafia Masih,
Senior Principal Scientist, CSIR-NCL, Pune
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outreach. My guiding principles remain curiosity, clarity, collaboration, and accessibility, ensuring every child can discover the joy and possibility of science.

Looking forward, we aim to pioneer immersive experiences like VR and AI-based workshops, build Citizen Science Networks, and create international partnerships for student camps and teacher training.

Nurture curiosity and never stop asking questions. Science is an adventure, explore with Jigyasa. The story of Jigyasa is not just mine. It belongs to every child inspired, every teacher and parent to approve, and every scientist who believes in the transformative power of education and outreach.

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Jigyasa Monthly Highlights

Lab Name	No. of events	Total no. of Students benefitted	Total number of Teachers benefitted	Engagement Activities
CSIR-CCMB	1	60	4	Lab Visit, Popular Lecture, Demonstration
CSIR-CDRI	6	1025	59	Lab Visit, School Visit, Online Engagement, Mobile Science exhibition, Popular Lecture, Demonstration, Competition, Quiz,
CSIR-CFTRI	1	270	10	School Visit, Popular Lecture, Demonstration
CSIR-CIMAP	2	91	5	Lab Visit, Popular Lecture, Demonstration, Field Visit, Online engagement, competition, quiz
CSIR-IICB	2	251	10	School Visit, Popular Lecture, Demonstration
CSIR-IIIM	1	258	11	Sessions, demonstrations, hands-on activities,
CSIR-IITR	2	430	10	Popular Lecture, Lab Visit, DIY kit demonstration
CSIR-NBRI	4	501	29	School Visit, Lab Visit, Popular Lecture, DIY Kit Demonstration, Quiz
CSIR-CLRI	1	254	10	students visited lab, demonstration
CSIR-CECRI	5	772	45	School visit, quiz, demonstration, DIY Kit demonstration, Popular Lecture,
CSIR-CSMCRI	1	235	4	School Visit, Popular Lecture, Celebrated National Space Day
CSIR-CIMFR	1	200	20	School Visit, Science Exhibition.
CSIR-IIP	1	50	2	Lab Visit, Popular Lecture
CSIR-NCL	2	114	6	Lab Visit, School Visit, Popular Lecture
CSIR-NEIST	1	90	8	School Visit, Popular Lecture, Demonstration, DIY kit demonstration, hands-on experience
CSIR-NIIST	4	344	34	lab visit, popular lecture, live demonstration, quiz
CSIR-AMPRI	2	250	9	School Visit, Popular Lecture, Demonstration
CSIR-CMERI	3	377	23	School Visit, Popular Lecture, DIY Demonstration,
CSIR-CRRI	1	100	4	School Visit by Scientists, Popular lecture, quiz
CSIR-IMMT	8	1185	71	School Visit, Lab Visit, Popular Lecture, Quiz, ATL Activity, National Space Day, Exhibition
CSIR-NAL	3	154	39	Lab Visit, Demonstration, Teacher Training, School Visit, Popular Lecture

Jigyasa Monthly Highlights

Lab Name	No. of events	Total no. of Students benefitted	Total number of Teachers benefitted	Engagement Activities
CSIR-NML	4	265	13	Lab Visit, Demonstration, DIY Kit Demonstration
CSIR-NEERI	5	452	22	Lab Visit, Popular Lecture, Demonstration, Field Visit, ATL activity, Quiz
CSIR-SERC	1	250	30	School Visit, Popular Lecture
CSIR-NIScPR	1	40	2	Lab Visit, Popular Lecture, Demonstration, Quiz, Workshop
CSIR-4PI	1	181	2	Online Essay Competition
CSIR-NGRI	1	0	82	Teacher Training Programme
CSIR-CSIO	1	44	3	Students Visit Lab, Popular lecture, DIY Kit Demonstration, National Space Day
CSIR-NPL	2	355	12	students visited lab, demonstration, quiz
Total	68	8598	579	

Jigyasa Monthly Highlights

CSIR-NGRI, Hyderabad

August 3, 2025

- 82 teachers, representing 80 different schools in Hyderabad, participated in the Teacher Training Programme.

CSIR-IITR, Lucknow

August 7, 2025

- Lab visit was organized for 250 students and 7 teachers from Rajkiye high school.

August 21, 2025

- 180 students and 3 teachers from Saraswati Vidya Mandir were invited for a field visit.

CSIR-IIIM, Jammu

August 11-13, 2025

- 258 students and 11 teachers from Shaheen Public Hr. Sec. School, Govt. Boys Hr. Sec. School, Lotus Model Hr. Sec. School, Thathri, Bharatiya Vidya Mandir High School visited the lab.

Jigyasa Monthly Highlights

CSIR-NAL, Bengaluru

August 11-12, 2025

- A residential programme was conducted for 25 teachers.

August 22, 2025

- 50 students and 2 teachers from Crescent institute of science and technology visited the lab.

August 23, 2025

- A student scientist programme was organized at 515 Army Base Workshop High school for 104 students and 12 teachers.

CSIR-NEIST, Jorhat

August 29, 2025

- 90 students and 8 teachers interacted with scientists at from Gorumara High School.

CSIR-CRRI, New Delhi

August 29, 2025

- 100 students and 4 teachers from KV Delhi Cantt No. 1 participated in the outreach activity.

Jigyasa Monthly Highlights

CSIR-NIIST, Trivandrum

August 8, 2025

- Jigyasa programme was conducted for 10 Students and 2 teachers from Mount Royal College, Munnar.

August 11, 2025

- Outreach programme was organized for 236 Students and 22 teachers from Kendriya Vidyalayas, Jawahar Navodaya Vidyalayas, Govt School, Malayinkeezhu, TVM.

August 23, 2025

- 79 students and 8 teachers from Kendriya Vidyalayas in TVM visited the lab and interacted with scientists.

August 29, 2025

- 19 students and 2 teachers from Muthukaruppan Memorial Arts and Science College participated in a student scientist programme.

CSIR-NIScPR, New Delhi

August 19, 2025

- 40 students and 2 teachers from NeeV Learning Center, Gurugram visited the lab and interacted with scientists.

Jigyasa Monthly Highlights

CSIR-CIMFR, Dhanbad

August 22, 2025

- Science exhibition was organized for 200 students and 20 teachers at the Saraswati Shishu Mandir, Shyamdih.

CSIR-IICB, Kolkata

August 20, 2025

- Scientists visited and shared their knowledge with 65 students and 5 teachers at Dankuni Sree Ramkrishna Vidyashram (H.S.)

August 29, 2025

- 186 students and 5 teachers participated in a student scientist programme at Kachiamara Hemchandra High School and Panchuakhali High School (H.S.)

CSIR-NCL, Pune

August 22, 2025

- 54 students and 3 teachers from Vishwashanti Gurukul World School visited the lab.

August 25, 2025

- Scientists visited and gave a lecture to 60 students and 3 teachers at PM SHRI KV Army Area.

Jigyasa Monthly Highlights

CSIR-NPL, New Delhi

August 13, 2025

- 270 students and 9 teachers from 3 different schools visited the lab.

August 22, 2025

- 85 students and 3 teachers from different schools visited the lab.

CSIR-CSIO, Chandigarh

August 25, 2025

- On the occasion of National Space Day, 44 students and 3 teachers from Government Model High School visited the lab.

CSIR-AMPRI, Bhopal

August 26, 2025

- Scientists visited and connected with 150 students and 2 teachers from PM SHRI KV No.1, Bhopal.

August 28, 2025

- Scientists visited and gave a lecture to 100 students and 7 teachers from KN No 02, Bhopal.

Jigyasa Monthly Highlights

CSIR-CECRI, Tamil Nadu

August 1, 2025

- A student scientist programme was conducted at KV No.1 school for 172 students and 4 teachers.

August 8, 2025

- Scientists visited KV No. 2, Madurai, Gov. Hr. Sec. School, Boothipuram and Gov. Girls Hr. Sec. School, Aundipatti to interact with 204 students and 14 teachers.

August 26, 2025

- 23 students and 3 teachers from VO Chidambaram College visited the lab.

August 28, 2025

- 140 students and 11 teachers participated in a Jigyasa programme from National Academy CBSE School, Pattanamkathan, Ramanathapuram and National Academy Matriculation Higher Secondary School, Uchipuli, Ramanathapuram.

August 29, 2025

- An outreach progeamme was conducted for 233 students and 13 teachers at the Governement Girls Higher Secondary School, Paramakudi and Government Higher Secondary School, Thiruppalaikudi, Ramanathapuram district.

Jigyasa Monthly Highlights

CSIR-IIP, Dehradun

August 7, 2025

- 50 students and 2 teachers from Gyananda School, Dehradun visited the lab.

CSIR-CIMAP, Lucknow

August 25, 2025

- 52 students and 1 teacher from Delhi Public School, Indiranagar attended a popular lecture and visited the lab.

August 29, 2025

- An online quiz competition was conducted for 39 students and 4 teachers from PM Shri Kendriya Vidyalaya, CRPF, Lucknow and Radiant Public School.

CSIR-CSMCRI, Bhavnagar

August 23, 2025

- On the occasion of National Space Day, Scientists visted PM SHRI JNV, Bhavnagar and Sardar Vallabhbhai Patel Patel Primary Schooland interacted with 235 students and 4 teachers.

Jigyasa Monthly Highlights

CSIR-NML, Jamshedpur

August 8, 2025

- 48 Students and 2 Teachers from Govind Vidyalaya Tamulia visited the lab.

August 12, 2025

- A student scientist programme was conducted for 77 Students and 2 Teachers from Loyola School.

August 22, 2025

- 54 Students and 2 Teachers from Srinath Public School, Jamshedpur attended the outreach programme.

August 29, 2025

- A Jigyasa programme was organized for 86 Students and 7 Teachers from St. Joseph's Convent High School.

CSIR-CMERI, Durgapur

August 1, 2025

- 100 students and 2 teachers from PM Shri Kendriya Vidyalaya, Adra, Purulia participated in Jigyasa programme at the lab

August 26, 2025

- 192 students and 14 teachers from PM Shri JNV, Bankura participated visited the lab.

August 28, 2025

- 85 students and 7 teachers participated in outreach programme at the Pandit Raghunath Murmu Abasik School, Fuljhore.

Jigyasa Monthly Highlights

CSIR-CDRI, Lucknow

August 5, 2025

- 40 students and 1 teacher from Seth (MR Jaipuria School visited the lab.

August 8, 2025

- A Jigyasa programme was conducted for 64 Students and 4 Teachers from DAV public School, Indira Nagar.

August 21, 2025

- 550 Students and 30 Teachers from ISRO Telemetry, Tracking and Command Network (ISTRAC), Lucknow participated in an outreach programme.

August 22, 2025

- Scientists visited Shri Krishna College of Pharmacy, Sitapur and interacted with 280 Students and 20 Teachers.

August 26, 2025

- 41 Students and 2 Teachers from Hygia Institute of Pharmacy were engaged in a student scientist programme.

August 28, 2025

- 50 Students and 2 Teachers from Axis Institute of Pharmacy, visited the lab.

Jigyasa Monthly Highlights

CSIR-NEERI, Nagpur

August 5, 2025

- 35 Students and 2 Teachers from Delhi Public School Nagpur were invited for a field visit.

August 21, 2025

- Jigyasa programme was organized for 64 Students and 5 Teachers from Calavala Cunnan Chetty's Hindu Matriculation Higher Secondary School, Chennai.

August 25, 2025

- 31 students and 1 teacher from Shree Convent & High School participated in an outreach programme.

August 28, 2025

- A student scientist programme was conducted for 156 Students and 6 Teachers from PM Shri Jawahar Navodaya Vidyalaya, Ghatanji.

August 29, 2025

- 166 Students and 8 Teachers from PM Shri Jawahar Navodaya Vidyalaya, Navegaon visited the lab.

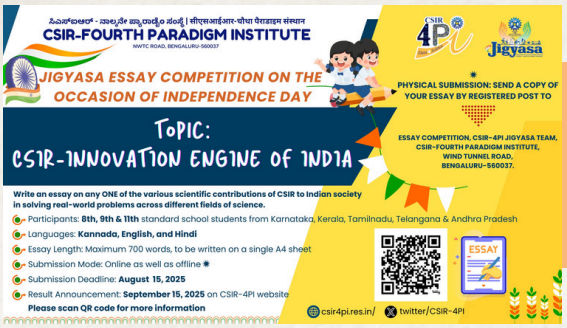
CSIR-CFTRI, Mysore

August 29, 2025

- Scientists visited JNV Mysore and interacted with 270 Students and 10 Teachers

Jigyasa Monthly Highlights

CSIR-4PI, Bengaluru



August 15, 2025

- 181 Students and 2 Teachers from 12 different schools and 5 different states participated in an online Jigyasa Jigyasa Essay Competition on the occasion of Independence Day 2025.

CSIR-CLRI, Tamil Nadu

August 29, 2025

- 254 Students and 10 Teachers from Shree Niketan Matriculation Hr Sec School joined an outreach programme.

CSIR-CCMB, Hyderabad

August 18, 2025

- Student scientist programme was conducted for 60 students and 4 Teachers from SR School, Bolarum.

Jigyasa Monthly Highlights

CSIR-NBRI, Lucknow

August 6, 2025

- Jigyasa programme was organized for 167 Students and 8 Teachers at PM Shri Kendriya Vidyalaya, No.2 AFS Chakeri.

August 12, 2025

- 90 Students and 3 Teachers from Seth M R Jaipuria visited the lab.

August 19, 2025

- Outreach programme was conducted for 148 Students and 13 Teachers at PM Shri Jawahar Navodaya Vidyalaya Fatehpur

August 28, 2025

- Scientists visited PM Shri Kendriya Vidyalaya, Bulandsahar and interacted with 96 Students and 5 Teachers.

CSIR-SERC, Chennai

August 21-22, 2025

- Scientists visited 4 different Government Higher Secondary schools in Tenkasi and interacted with 250 students and 30 teachers.

Jigyasa Monthly Highlights

CSIR-IMMT, Bhubaneswar

August 6, 2025

- Scientists visited Sainik school and mentored a group of 29 students and 1 teacher for ATL Lab.

August 6, 2025

- 343 students and 13 teachers from Government UP School, RRL Colony visited the lab.

August 11, 2025

- Scientists visited Sainik school and mentored a group of 32 students and 3 teacher for ATL Lab.

August 12, 2025

- Student scientist programme was conducted at Sainik school and KV No.4 for 82 students and 12 teachers.

August 20, 2025

- Outreach programme was conducted at Sainik school for 14 students and 2 teachers.

August 23, 2025

- Jigyasa programme was organized at KV No.3 and JNV Jajpur for 540 students and 29 teachers.

August 26, 2025

- 190 students and 6 teachers from KMBB Higher Secondary School, Trisulia visited the lab.

August 28, 2025

- Jigyasa programme was organized for 126 students and 5 teachers from KMBBPublic School, Trisulia.

Jigyasa Lab Spotlight

CSIR-National Chemical Laboratory (CSIR-NCL), Pune

'The purpose of this laboratory is to advance knowledge and to apply chemical science for the good of the people'

CSIR-NCL, Pune, is a vibrant Research Development & Industrial organisation working in the area of chemical and allied areas, where researchers and students advance knowledge and create solutions for society. CSIR-NCL teams work across fields like sustainable manufacturing of pharmaceuticals, green hydrogen, batteries, plastics recycling, biomanufacturing agro-biologics and computational modelling.

PhD students at NCL are trained for real-world problem solving, collaborating and developing leadership skills. In addition to S&T in their research domains, they develop breadth of knowledge through specialised training in IP & technology management, entrepreneurship and techno-economics.

Science outreach is central to NCL's mission. Through Jigyasa, thousands of school students and teachers engage with hands-on labs, workshops, and mentorship sessions that make science practical and fun. Jigyasa events encourage curiosity, teamwork, and confidence, helping students see science in everyday life.

Skill development is another key focus, with short courses in chemistry, biotechnology, food safety, and science communication. These training programs, open to students and professionals, offer hands-on practice and career guidance.

NCL's research delivers technologies and innovations that benefit society—from green energy, water purification, and waste upcycling to healthcare and agriculture. During emergencies like Covid-19, NCL responded with vital solutions including masks, swabs and waste water surveillance.

Students and society gain direct exposure to real laboratories and scientists, fostering curiosity and social responsibility. NCL welcomes all who want to learn, explore, and contribute to a future shaped by science.

CSIR-NCL
Dr. Homi Bhabha Road, Pune- 411008, India.
https://www.ncl-india.org/

The Curious Corner

Rani took baking soda and vinegar in a glass from her kitchen. The mixture fizzes and produces a colorless gas heavier than oxygen as well as nitrogen. What gas is that?

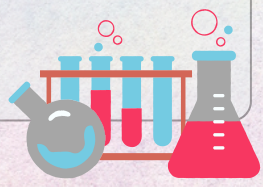
Without me, an animal cell cannot produce its energy. I live inside the cell but I have my own DNA. Your mother primarily gave you me. Who am I?

I am balloon with a twin. I played in the hot sun, while my twin stayed in AC room. Who has more pressure now?

A potted green plant in sealed transparent container stayed in total darkness for 5 days. Will the oxygen level inside increase, decrease, or stay the same?

People dislike my sharp pungent odour, yet I am welcomed in fields because I feed crops with nitrogen. I am a gas that can turn red litmus paper to blue. What am I?

Answers will be shared in the next months Newsletter



The Curious Corner

When was the CSIR-National Chemical Laboratory (CSIR-NCL) formally established?

A. 1947
B. 1950
C. 1960
D. 1975

Who was the first Indian director of NCL, known also for the Baker–Venkataraman rearrangement?

A. Dr. B. D. Tilak
B. Dr. L. K. Doraiswamy
C. Dr. K. Venkataraman
D. Dr. R. A. Mashelkar

During the 1960s, which major public-sector company was established based on NCL-developed technologies?

A. IPCL
B. Hindustan Organic Chemicals
C. Cipla
D. Biocon

In the 1970s, NCL played a key role in nurturing an industry based on indigenous process chemistry, especially post the Indian Patent Act 1970. Which industry grew from that?

A. Agrochemical Producers
B. Generic drug / API manufacturing
C. Polymer import substitution
D. Fuel cell industry

Which slogan did NCL coin during the 1990s to emphasize innovation and intellectual property creation?

A. Innovate or stagnate
B. Patent, publish or perish
C. Research, Patent, Prosper
D. Science for Industry

Answers will be shared in the next months Newsletter

The Curious Corner

Which clean energy prototype was trialed at NCL in 2020?

A. Solar-powered car
B. Electric two-wheeler
C. Hydrogen fuel-cell vehicle
D. Bioethanol-powered generator

Which fuel-related process innovation has NCL developed, involving dehydration of methanol?

A. Ethanol to ethylene
B. Methanol to Dimethyl Ether (DME)
C. Propanol to propylene
D. Methane reforming

Which scientist at NCL was instrumental in establishing India's first microreactor lab and scaling up silver nanowires production—winner of the Shanti Swarup Bhatnagar Prize in 2020?

A. Dr. Gangadhar J. Sanjayan
B. Dr. B. D. Kulkarni
C. Dr. Amol A. Kulkarni
D. Dr. A. V. Rama Rao

Which of these NCL innovations addresses oxygen shortage, especially critical during the pandemic?

A. Oxygen-enriching zeolite process
B. Portable ventilator design
C. Solar oxygen concentrator
D. Electrolyser for oxygen generation

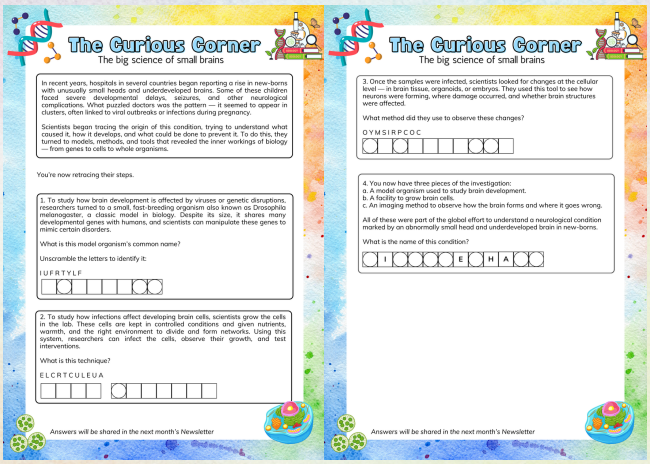
Which recent facility in 2025 has been set up by NCL and Centre for Process Innovations United Kingdom to reduce harmful emissions of pharmaceutical industry?

A. Green Chemistry Pilot
B. Innovation Hub
C. Living Lab
D. Decarbonisation Centre

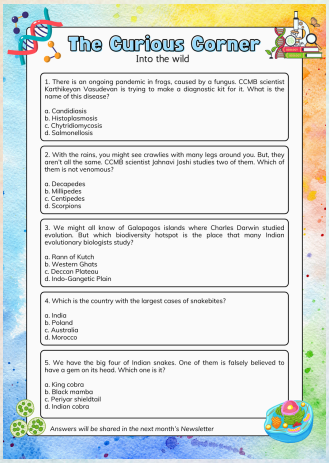
Answers will be shared in the next months Newsletter

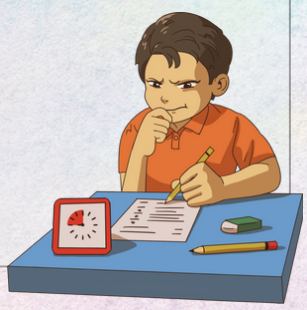
Answers to previous month's quiz

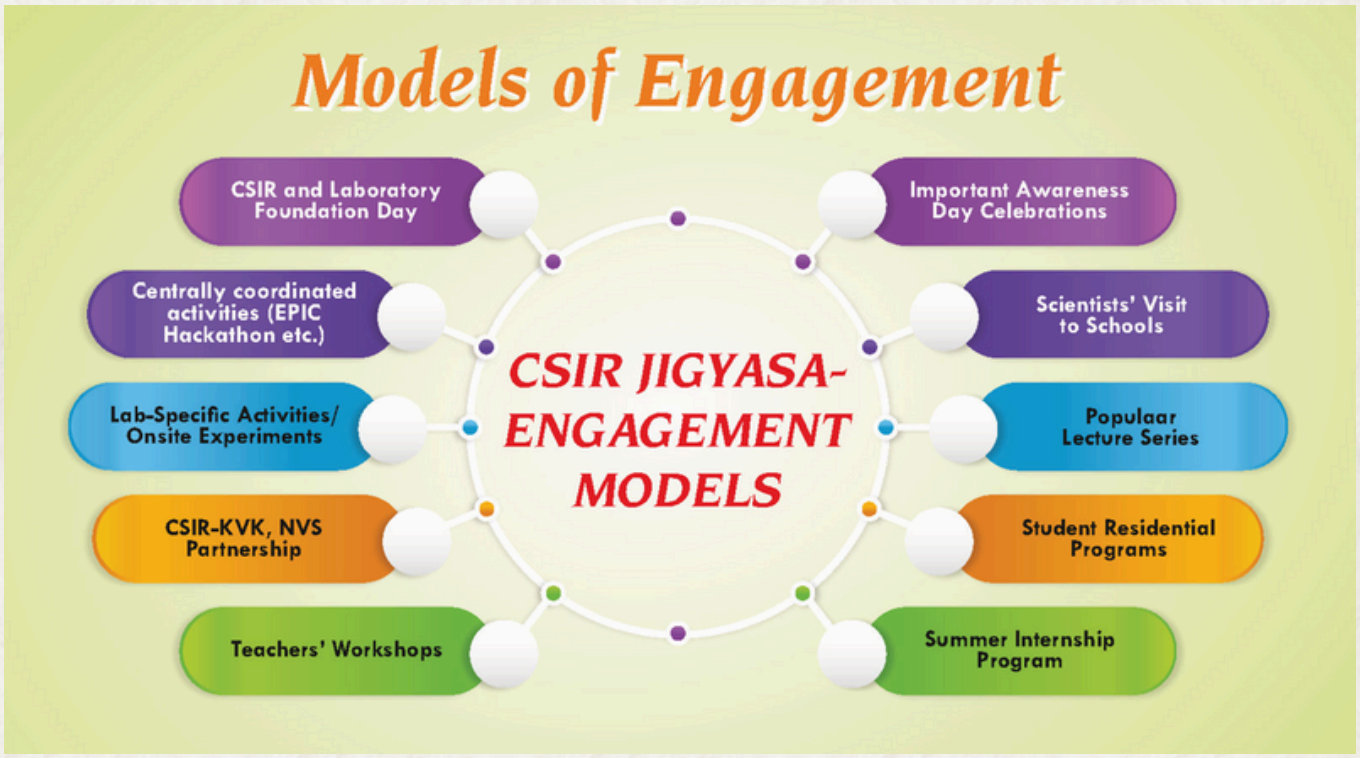
1. Fruitfly
2. Cell Culture
3. Microscopy
4. Microcephaly



1. c. Chytridiomycosis
2. b. Millipedes
3. b. Western Ghats
4. a. India
5. d. Indian Cobra







Contact Us for contribution to this Newsletter

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