NATIONAL ASSESSMENT FOR SCIENTIFIC TEMPERAMENT & APTITUDE

NASTA
"The society in which the strength of Scientific Temper grows, it develops equally fast. Scientific Temper eradicates superstition, reduces superstition. Scientific Temper increases activity in society. Scientific Temper encourages usability. Finds reasoning in everything, builds understanding to form its own opinion based on logic and facts and, most importantly, it empowers to challenge the Fear of Unknown."

**Shri Narendra Modi**

*Prime Minister of India*

(Ref: Inaugural Speech at 5th IISF, 05.11.2019)
Knowledge and Awareness Mapping Platform

Knowledge and Awareness Mapping Platform “KAMP” is an International intellect E-based assessment platform to evaluate cognizance of 21st century skills, awareness, and knowledge of Science, Technology & Humanities among students.

VISION

"To identify and capture Scientific and Technological temperament in students to make "India - A Global Leader in the Field of Science, Technology & Humanities"

Director’s Message

“CSIR-NISTADS is one of the premier institutes of the country to provide inputs to policymakers for formulating the policy of Science, Technology, Innovation (STI), and entrepreneurship. Knowledge and Awareness Mapping Platform (KAMP), aimed to develop and map the Scientific Temperament of children, will help nurture innovation and creativity from an early age. The analyses of the mapping data would be used to create inputs for S&T policy to the new generation of scientific leaders are produced in the country.”

Prof. Ranjana Aggarwal
Director, CSIR-NISTADS

Knowledge and Awareness Mapping Platform (KAMP) is an initiative and Knowledge Alliance of CSIR - National Institute of Science Technology and Development Studies (NISTADS), a constituent laboratory of CSIR, Under the Department of Scientific and Industrial Research, Govt. of India with M/S, NYSA Communications Pvt. Ltd (NCPL), Noida, U.P. KAMP intends to develop creativity, meaningful learning, critical reading, and thinking skills that brings out the inherent abilities of students.

CSIR-NISTADS is devoted to research on policy, policy advisory and provides research support to national S&T agencies on science, technology, society, and innovation challenges. CSIR-NISTADS is a pioneering research organization in the realm of S&T policy research in the areas of Innovation systems, S&T Human resources, Rural development, MSME, Global governance, Climate change, Energy and Environment and other domains related to STI (Science, Technology, and Innovation) policy. One of the pressing issues of India is that young students are not attracted to opt science as a career, and therefore, there is a strong need to address this issue.
What is Scientific Temperament?

Scientific temperament refers to an individual’s attitude of logical and rational thinking. An individual is considered to have a scientific temper if s/he employs a scientific method of decision-making in everyday life. The term was first coined by India’s first Prime Minister, Jawaharlal Nehru, in his book ‘The Discovery of India’.

“A Statement on Scientific Temper” prepared by a group of scholars and issued on behalf of the Nehru Centre, Bombay, in July 1981, mentions that “Scientific Temper involves the acceptance, amongst others, on the following premises:

(a) The method of science provides a viable method of acquiring knowledge;

(b) The human problems can be understood and solved in terms of knowledge gained through the application of the method of science;

(c) The fullest use of the method of science in everyday life and every aspect of human endeavor from ethics to politics and economics is essential for ensuring human survival and progress; and

(d) That one should accept knowledge gained through the application of the method of science as the closest approximation of truth at that time and question what is incompatible with such knowledge; and that one should from time to time re-examine the basic foundations of contemporary knowledge.”

Indian Constitution on Scientific Temperament

Article 51 A of our constitution which deals with fundamental duties makes it a duty of every citizen to develop Scientific Temper; (as per clause [h]). It is the Scientific Temper that helps in developing Secularism, Humanism & Spirit of enquiry and reform.

The Government of India, through the National Council for Science and Technology Communication, dedicated the 28 February National Science Day of 2014 to the theme “Fostering Scientific Temper”

Knowledge and Awareness Mapping Platform (KAMP) is the first initiative taken by CSIR-NISTADS, to map Scientific temperament and Attitude of young students based on their assessment outcome and nurture them as future scientists of the country. It believes that every student is blessed with a core talent and aimed to bring the best in them through this platform.
National Assessment for Scientific Temperament and Aptitude [NASTA]

National Assessment for Scientific Temperament and Aptitude (NASTA) is designed and developed to identify and promote scientific temper among students. This is one of the primary initiatives under KAMP. It is an Attribute-Based assessment as against only Subject Based Assessment. NASTA provides educators, policymakers, and parents with a common measure of student achievement.

NEED OF NASTA

- NASTA assess a comprehensive, integrated approach in mapping the scientific temperament of young brains.
- Building a concept to develop an understanding of the scientific aspects of nature.
- To help the student identify their hidden talent and provides a platform for self-assessment.
- Mapping and help nurturing the scientific aptitude among students.

OBJECTIVE

- Mapping and helping students/parents to identify scientific attitude & enable them to understand their inherent potential for different career choices.
- Awareness among students on the latest developments in emerging technologies.
- Map specific attributes essential to become a successful scientist or technologist.
- Infuse a healthy competitive spirit through rewards, based on performance levels.

IMPACT AND OUTCOME

- Identify learning outcome levels of students in India and abroad.
- Comprehensive advisory for students/parents which will help in identifying the areas of strength.
- Data and Analytics will support policymakers to analyze the current learner’s level.
- Support schools to provide an enabling environment to identify students with unique skills.
- Help nurture their skills/talents by creating District KAMP - Junior Scientist Club.
- Helps policymakers to take necessary curricular reforms.
KAMP Offerings to Students

**REGISTER...**
Register to become a part of National Science Community. School and Student can register online through KAMP website http://kamp.nistads.res.in.

**ASSESS...**
Students will participate in NATIONAL ASSESSMENT OF SCIENTIFIC TEMPERAMENT AND APTITUDE “NASTA” to assess the present level of scientific temper.

**ADVICE...**
Based on the outcome of assessment, a comprehensive advisory will be shared with students on how they can improve and develop scientific temper.

**ENGAGE...**
Registered students will become a part of “District – KAMP Junior Scientist Club” a platform to nurture scientific temper among students.

**EXPLORE...**
National level toppers will get an opportunity to represent their achievements in National/State level Science events like “IISF” etc.

**EXCEL...**
High performers will get an opportunity to visit and work closely with various National Science, Technology & Research Institutions.
Assessment Overview

What subjects does NASTA assess?

National Assessment for Scientific Temperament & Aptitude (NASTA) includes a range of specific subjects at grades 5th to 10th to provide a comprehensive look at the wide array of academic areas that are a part of a student's education.

What is it like for students and schools to participate in NASTA?

NASTA is administered offline/online to students during regular school hours. Each student is assessed on the different attributes of NASTA. Students spend between 90 and 120 minutes taking the assessment. Student responses on NASTA are private, and the privacy of each participating school and student is essential. KAMP Planning & Monitoring Committee sets the NASTA policy, determines the assessment schedule, and what content should be measured. NASTA will be administered in English, Hindi, or other regional languages. All students/schools of CBSE, ICSE/ISC, Other State Boards, and other institutions can participate in NASTA.

Assessment Indicators

NASTA indicators involve means and methods to reach scientific information and thus allows the student to think scientifically. The science process occurs naturally, spontaneously in our minds. By logically breaking down the steps in our thinking, we use the scientific process to find out how to answer our questions about how the world works. National Assessment for Scientific Temperament & Aptitude includes the following attributes:
KAMP introduces the career advisory and aptitude assessment for senior students of schools and other institutions. NASTA assess the awareness and aptitude for senior students. Individuals differ from each other in terms of psychological dimensions such as ability, interest, aptitude, personality motivation, and emotions. Aptitude is one such dimension which refers to the ability to acquire skill or knowledge in a particular area. NASTA results help the students to revalidate their choices and interest areas to excel in the future. It gives ample time to the students to indulge in self-explanation and self-preparation in academics as well as in exploring the world.

Following are the assessment indicators of NASTA:

**MECHANICAL REASONING**
It is the ability to understand and apply mechanical concepts and principles to solve problems. It assesses the areas of acceleration, pressure, energy transformation, work, and power, levers, pulleys, screws, springs, tools, etc.

**MATHEMATICAL REASONING**
It refers to understanding numerical relationships and applying the same to the issue/problem. It also covers areas like ratio, percentage, square and square root, cube and cube root, number sequence, factorization, linear equation, work, and speed, etc.

**DIGITAL LITERACY**
Digital literacy refers to an individual's ability to find, evaluate, and compose clear information through writing and other media on various digital platforms.

**SPATIAL APTITUDE**
It is related to the capacity to mentally manipulate actual materials through imagining. This assesses how well a student understands words and their synonyms, spells the word correctly, and identifies the correct meaning of the given idioms/proverbs.

**LANGUAGE APTITUDE**
It is concerned with a person's ability to use and understand written language. This assess how well a student understand words and their synonyms, spell the word correctly and identifies the correct meaning of the given idioms/proverbs.

**PERCEPTUAL APTITUDE**
It refers to a person's ability to quickly, accurately, and meaningfully compare visual information like numbers, objects, pictures, or patterns. It assesses how students compare the paired groups of letters or numbers and identify the similarities or differences.

**ABSTRACT REASONING**
It is non-verbal and assesses how well students can reason and logically relate geometric shapes or designs. Series and sequences based questions.

**VERBAL REASONING**
It is the ability to understand and reason using concepts expressed in words. It evaluated a student's ability to think constructively with words.
Assessment Report

NASTA 2020 ASSESSMENT REPORT

Shubham Jain  National Assessment of Scientific Temperament & Aptitude  Class: 5  Dec 15, 2020  School Name: DPS World School

Your Overall Score: 85%  National Rank: 120  Grade Achieved: A

Congratulations! You have successfully completed your assessment. This is a tremendous accomplishment!

What Does this Diagram Mean?
The diagram uses six different performance rating categories to show your overall performance in the assessment. Each rating reflects the overall grade achieved by you.

Performance Rating Categories**
Exemplary: The Exemplary level signifies superior mastery of knowledge and skills. The learning shown by the student exceeds grade-level expectations in significant ways.
Proficient: The Proficient level represents solid mastery of knowledge and skills, indicating that the learning shown by the student meets grade-level expectations.
Accomplished: The Accomplished level denotes partial mastery of the knowledge and skills that are fundamental for satisfactory work.
Developing: The Developing level denotes developing stage mastery of the knowledge and skills. The learning shown by the student may be inconsistent, and meets grade-level expectations at a minimal level.
Marginal: The Marginal level indicates little or no mastery of fundamental knowledge and skills. The learning shown by the student does not meet grade-level expectations.
Novice: The Novice level indicates no mastery of fundamental knowledge and skills. The learning shown by the student does not meet grade-level expectations.

**The categories presented on this report were created to help you see where you may need additional preparation. They should not be used or interpreted for other purposes, such as career options, job decisions.

How is Your Score Determined?
KAMP uses subject matter experts—project professionals from around the world and from many different disciplines—to determine the grading categories and the ranking system. Each scored question in the assessment is worth one point, and your final score is calculated by totaling the points you have earned in the assessment. The number of questions you answer correctly places you within one of the performance rating categories you see on this report.

Your Performance by Domain:
Using the same categories as above, your performance has been calculated within each domain. This will help you identify your strong areas—as well as those needing improvement—so that you can plan your future holistic development.

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Applying</th>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognition</td>
<td>Observation</td>
<td>Classification</td>
</tr>
<tr>
<td>A</td>
<td>A</td>
<td>B+</td>
</tr>
</tbody>
</table>

What Can You Do Next?
Celebrate your accomplishment and reward yourself for all your hard work! You should also:
- Check your Student Login. Look for more information on when your certificate will be delivered.
- Start thinking about your future professional development. Learning more about your exam performance is a great way to start. See our web page: [http://kamp.staeb.roc.i.in/KAMP/Junior/Scientist](http://kamp.staeb.roc.i.in/KAMP/Junior/Scientist) for more detail on how you can be a part of Junior Scientist Club.
Awards and Recognition

- Awards are being categorised into National, State and District from left to right and top to bottom.
- Class-wise grades will be awarded to the toppers.
- Certificate of Participation will be given to all the participants of KAMP.
- Certificate of Appreciation will be awarded to the KAMP-Nodal Officer.
- Science Education Excellence Award, Incubator Award and Progressive Educators Awards for School at National, State and District Level

For more details, visit http://kamp.nistads.res.in
KAMP Jr. Scientist Club (K-JSC)

KAMP brings an opportunity for students to become a part of the National Scientist Community by creating “KAMP-JSC” [Knowledge and Awareness Mapping Platform - Junior Scientist Club] in each District.

KAMP-JSC will provide a platform to nurture scientific temperament for students to become a Creator, Innovator, and A Problem Solver!!

Mission/Objectives of K-JSC

- Bringing scientific awareness among students.
- To Promote STEAM Education and to help students learn science differently.
- Disseminate information on Science & Technology (S&T).
- Reach out to fellow students especially in remote areas to popularize science.
- Stimulate spirit of curiosity, inquiry, innovation, and creativity to supplement conventional education and foster scientific temper.

How KAMP-JSC is Formed at District Level?

- KAMP-JSC is a District Level Self-Sustainable Club.
- Schools and students enrolled for KAMP will be a member of KAMP-JSC.
- In each district 1 school will be selected as KAMP Facilitation center and the school Principal will be District President of JSC.
- KAMP meets, events, and conferences shall be organized at KAMP Facilitation Center.

Benefits of K-JSC

- Access communication materials provided by CSIR free of cost or at attractive discounts (depending on availability).
- Exchange views and ideas, express opinions and gain insight (s) into a vast array of activities of other clubs through the KAMP newsletter.
- Participate in programs including training and campaigns organized by KAMP.
- Get together with other KJSC at the regional level to form a cluster to organize such programs as training, workshops, jathas, lecture-cum-demonstrations, etc. for which KAMP could assist in the form of resource persons, course materials and kits, and other necessary inputs- in response to a proposal for specific activities.
- Get national exposure and recognition through the KAMP website.
NASTA 2019 at a Glance

NATIONAL TOPPERS AND JR. SCIENTIST AWARDEE OF NASTA 2019

RAGHAV AKAR
Cambridge Court High School
Jaipur, Rajasthan
Class 5

PRIYANSH NAIR
Bhavan’s Vidya Mandir
Eroor, Ernakulam, Kerala
Class 5

JATIN VIKASH
Ambience Public School
South Delhi, Delhi
Class 6

DEVANSHI MUNJAL
Swami Sant Das Public School
Punjab, Kapurthala
Class 6

DEVIKA P.
Saraswati Vidyalaya Sr. Sec. Residential School
Thiruvananthapuram, Kerala
Class 7

SARTHAK AGGARWAL
Delhi Public School
Jaipur, Rajasthan
Class 7

SHREYANSH KUMAR
Delhi Public School
Dhanbad, Jharkhand
Class 8

ASHISH YAKASIRI
Step by Step School
Noida, Uttar Pradesh
Class 8

MANISH KUNDU
Delhi Public School
Dhanbad, Jharkhand
Class 9

PRIYANSH NAIR
Bhavan’s Vidya Mandir
Erloor, Ernakulam, Kerala
Class 5

SHREYANSH KUMAR
Delhi Public School
Dhanbad, Jharkhand
Class 8

ASHISH YAKASIRI
Step by Step School
Noida, Uttar Pradesh
Class 8

MANISH KUNDU
Delhi Public School
Dhanbad, Jharkhand
Class 9

KHUSHI RASHMIN PURSHIT
Navy Children School
Porbandar, Gujarat
Class 9

MRIGANK PAWAGI
Vishwa Bharti Public School
Noida, Uttar Pradesh
Class 10

SHIVAM KUNTAL
Delhi Public School
Nagpur, Maharashtra
Class 10

SCHOOLS RECOGNISED FOR OUTSTANDING PERFORMANCE

Delhi Public School
Dhanbad, Jharkhand

Ambience Public School
South Delhi, Delhi

Swami Sant Das Public School
Punjab, Kapurthala

Vishwa Bharti Public School
Noida, Uttar Pradesh

Cambridge Court High School
Jaipur, Rajasthan

Step by Step School
Noida, Uttar Pradesh

Bhavan’s Vidya Mandir
Erloor, Ernakulam, Kerala

Navy Children School
Porbandar, Gujarat

Delhi Public School
Nagpur, Maharashtra

Saraswati Vidyalaya Sr. Sec. Residential School
Thiruvananthapuram, Kerala

Delhi Public School
Jaipur, Rajasthan
KAMP Planning and Monitoring Committee (KPMC)

KPMC is a monitoring committee that includes representatives of CSIR laboratory (CSIR-NISTADS), NCPL & other members of Industry. KPMC monitors, provide direction, vision, advice, and road-map on the conduct, quality & upgrades of KAMP.

- **Prof. B. B. Dhar**
  - Chairman - KPMC
  - Former Director, CSIR-CMRI

- **Mr. Puneet Kumar**
  - Secretary - KPMC
  - Chairman, NCPL

- **Dr. Prashant Goswami**
  - Member - KPMC
  - Former Director, CSIR-NISTADS

- **Dr. Naresh Kumar**
  - Member - KPMC
  - Head-BDG, CSIR-NISTADS

- **Dr. Vipan Kumar**
  - Member - KPMC
  - Head-PME, CSIR-NISTADS

- **Dr. (Mrs.) Kastiuri Mandal**
  - Member - KPMC
  - Sr. Scientist, CSIR-NISTADS

- **Mr. Rajeev Gupta**
  - Member - KPMC
  - Managing Director, RDI (India) Pvt. Ltd.

- **Mr. Ashish Kumar Mittal**
  - Member - KPMC
  - Vice President, NCPL

- **Mr. Yadwinder Mittal**
  - Member - KPMC
  - Vice President, NCPL

**KAMP Advisory Committee (KAC)**

KAMP Advisory Committee (KAC) is a panel of experts for guidance on various aspects like subjects, curriculum questions, evaluation parameters, etc. which will help KAMP evolve into a robust and credible Global Assessment Platform for building & recognizing Scientific Temperament & Innovation in students from an early age.

- **Dr. Ranjana Aggarwal**
  - Director, CSIR-NISTADS

- **Prof. B. B. Dhar**
  - Chairman - KPMC

- **Shri. Mukul Kanitkar**
  - National Organizing Secretary, Bharatiya Shikshan Mandal

- **Prof. Sudhir Kumar Sopory**
  - Former Vice-Chancellor, Jawaharlal Nehru University, New Delhi

- **Mrs. Meera Balachandran**
  - Director - Education Quality Foundation of India
  - Former Principal of Ramjas School, New Delhi

- **Mrs. Meera Nagrajarao**
  - Associate Professor, Department of Physics, University of Bangalore

- **Dr. Tabassum Jamal**
  - Former Chief Scientist, CSIR-NISTADS

- **Prof. (Dr.) Syed Mohammad Akhtar**
  - Professor - Faculty of Architecture Ekistics, Jamia Millia Islamia, New Delhi

- **Prof. Umesh Chandra Kulshrestha**
  - Former Scientist, CSIR-IICT, Hyderabad
  - Professor - School of Environmental Sciences, Jawaharlal Nehru University, Delhi

- **Dr. Mohammad Aslam Parvaiz**
  - Former Vice-Chancellor, Maulana Azad National Urdu University (Hyderabad)

- **Prof. C. P. Kaushik**
  - Former Dean and Chairman, Dept. of Environmental Science and Engg., G.J. University of S & T, Hisar, Haryana

- **Prof. B. K. Khuthiala**
  - Vice-Chancellor, Makanalal Chaturvedi National University of Journalism & Communication, Bhopal

- **Dr. Ram Boojh**
  - CEO, Mobius Foundation
  - Former Programme Specialist Environment, UNESCO New Delhi

- **Dr. Arvind Ranade**
  - Scientist F, Astronomy and VIPNET Division, Vigyan Prasar, New Delhi

- **Dr. Naresh Kumar**
  - Senior Principal Scientist & Head, Business Development Group (BDG)

- **Mrs. Meera Nagrajarao**
  - Associate Professor, Department of Physics, University of Bangalore

- **Shri. Rakesh Kr. Upadhyay**
  - Centennial Chair Professor, Bharat Adhyyan Kendra, Banaras Hindu University, Varanasi
Students appearing for NASTA 2019 held on 27th and 28th January, 2020

Students visited CSIR-National Physical Laboratory (CSIR-NPL) on 18th October 2019

Dr. Ranjana Aggarwal (Director, CSIR-NISTADS), Mr. Puneet Kumar (Secretary-KPMC) felicitated KAMP Achievers

Key Note Address by Prof. K. Vijay Raghavan, Principal Scientific Advisor to Govt. of India at Theme Meet

Presidential Address by Dr. Shekhar C. Mande, DG CSIR at Theme Meet

Student Felicitation Ceremony held at Delhi Public School, Greater Noida in presence of Dr. Ranjana Aggarwal, Director CSIR-NISTADS

Unveiling KAMP Information Brochure by Dignitaries

Student Felicitation at CSIR-NPL, New Delhi

Students visit at CSIR-NPL, New Delhi

NASTA 2019 Assessment

Student Felicitation at CSIR-NPL, New Delhi

Dr. Ranjana Aggarwal (Director, CSIR-NISTADS), Mr. Puneet Kumar (Secretary-KPMC) felicitated KAMP Achievers

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