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केन्द्रीय माध्यमिक शिक्षा बोर्ड

(मानव संसाधन विकास मंत्रालय, भारत सरकार, के अधीन एक स्वायत्त संगठन)

शिक्षा सदन, 17, इन्सटिट्यूशनल क्षेत्र, राउज एवेन्यु, दिल्ली–110002.

CENTRAL BOARD OF SECONDARY EDUCATION

(An Autonomous Organization under the Union Ministry of Human Resource Development, Govt. of India)

"Shiksha Sadan", 17, Institutional Area, Rouse Avenue, Delhi-110002

CBSE/Sc.Exh/Dir(Arti)/2014 **20.08.2014**

All Heads of Institutions **Circular No. Acad - 25/2014**
affiliated to the Board

Subject: Organisation of CBSE Science Exhibition – 2014 - 15

Dear Principal

The Central Board of Secondary Education has been taking many initiatives to provide interactive, participatory, hands-on, innovative and creative learning experiences to students studying in its affiliated schools. One such initiative refers to the organisation of Science Exhibitions at Regional and National levels every year. The activity aims at providing a common platform to schools, teachers and students to give shape to their innovative ideas and learn from each other's experiences. These exhibitions also provide a medium for popularising Science and increasing awareness among stakeholders about the close relationship between Science, Technology and Society.

The main objectives of organising Science exhibitions can be summarised as:

- Promoting interest in Science and Technology among the youth.
- Providing a forum for children to pursue their natural curiosity, innovation and inventiveness to quench their thirst for creativity;
- Encouraging scientific and technological creativity among students and inculcating a sense of pride in their talent.
- Creating awareness that science and mathematics are all around us and we can gain knowledge as well as solve many problems by relating the learning process to the physical and social environment;
- Providing exploratory experiences, encouraging creative thinking and promoting psychomotor skills among school students through self-designed models or simple apparatus.
- Encouraging problem solving approach and developing appropriate technologies, especially for rural areas and integrating scientific ideas with daily life situations.
- Popularising Science and technology among masses and creating an awareness regarding its impact on socio-economic and sustainable development of the country.
- Emphasising on the development of science and mathematics as a major instrument for achieving goals of self-reliance and socio-economic and socio-ecological development;
- Analysing how science and mathematics have developed and are affected by many diverse individuals, cultures, societies and environment;
- Appreciating the role of science in meeting the challenges of life such as climate change, opening new avenues in the area of agriculture, fertiliser, food processing, biotechnology,

green energy, disaster management, information and communication technology, astronomy, transport, games and sports etc.

- Creating awareness about environmental issues and concerns and inspire children to devise innovative ideas towards their mitigation.

Taking into consideration the enthusiastic response from participating schools in the past, it has again been decided to organise Science exhibitions for the academic year 2014-15. These exhibitions are likely to be organised in different parts of the country at **Regional level** in the month of **November/ December** and at **National Level** in the month of **January/February, 2015.**

The main theme and sub-themes for this year's exhibition are:

Main Theme: Sciences and Mathematics for a Sustainable World

The six sub-themes are:

1. **Community Health and Environment (with special reference to North East)**
2. **Landmarks in Science and Mathematics;**
3. **Information and Communication Technology;**
4. **Energy-Resources and Conservation; (with special reference to North Eastern part of country)**
5. **Transport;**
6. **Waste Management**

Key aspects of the exhibition

How to register:

(i) All schools willing to participate may register on – line by paying a registration/ participation fee of INR. 650/-

(ii) Schools who are unable to register on-line may register by paying a participation fee of INR. 650/- in the form of a demand draft in favour of **Secretary, CBSE** payable at **New Delhi.** The request for participation along with the enclosed registration form and fee is to be sent to the following address super scribed '**Science Exhibition 2014-15' .**

Dr. Kshipra Verma
Education Officer
Shiksha Sadan, CBSE
17, Rouse Avenue
Near Bal Bhawan
New Delhi

(iii) The **last date for registration** for participation in the **event is 15th October, 2014.**

Rules for Participation:

(iv) The participating school can put up a **maximum of two exhibits/projects/models**.

(v) A school team may be represented by a **maximum of two students per exhibit** and one escort Science Teacher.

(vi) **School team participating at regional level and National level must remain the same**.

(vii) Students studying in **grade VI to XI** in the current academic year i.e. **2014-15** are eligible to participate.

(viii) The exhibit/project displayed and selected at regional level should be based on theme and sub theme selected.

(ix) The **sub-theme once selected cannot be changed.**

(x) Schools may rework on exhibit / project shortlisted at regional level for its display at national level. However they are **not allowed** to change the theme or sub theme of the selected / shortlisted exhibit.

(xi) The participating school/team will have to bear **all expenses** related to participation in the event.

(xii) The participating teams will have to make **their own lodging/boarding arrangements** at the venue city of exhibition.

How to prepare Models/ Projects:

(xiii) The exhibit/model may be either
   (a) A working model
   (b) An investigation-based project

(xiv) The exhibit/project may include

- working model to explain a concept, principle or a process
- an indigenous design of a machine/device
- an innovative/inexpensive design or technique
- application of basic principles of Science/Technology
- Scheme/design of a device or machine to reduce production cost
- Investigation based study

(xv) Greater emphasis may be given to investigation-based innovative projects to kindle scientific method and scientific approach in the students.

(xvi) A brief write-up about the main-theme and sub-themes is enclosed for reference. The participating teams may prepare the exhibits/projects on any one of the sub-themes satisfying one or more of the stated parameters.

(xvii) It is mandatory to submit a neatly typed brief write up (approximately 100 words) about the exhibit at regional as well as national level at the time of registration.

(xviii) The exhibits/projects will be **assessed** by the experts as per the following **criteria:**

a.	Students' own creativity and imagination	20%
b.	Originality and innovativeness in design of the exhibit/project	15%
c.	Scientific thought/principle	15%
d.	Technical skill/workmanship/craftsmanship	15%
e.	Utility/educational value	15%
f.	Economic aspect, portability, durability	10%
g.	Presentation -Explanation and demonstration	10%

General Guidelines:

(xix) The first stage of exhibition will be held at two/three different venues in every region.

(xx) The selected **best ten/ fifteen** exhibits/ schools at every regional level venue will be **eligible to participate** in the **National level exhibition**.

(xxi) The actual dates for the regional level exhibition will be communicated to every school and details will also be available on CBSE website **www.cbseacademic.in** by 31st October, 2014.

(xxii) Schools are advised to **refer to FAQ's and CBSE's guidelines** available on CBSE website.

(xxiii) Attractive awards/cash prizes are given to exhibits/students who present the best twenty models at the national level. (Further to inform you that winners of the National Level Science Exhibition may also get a chance to participate in 42nd Jawaharlal Nehru National Science Mathematics and Environmental Exhibition for Children 2015 organised by NCERT and may also get a direct entry in the prestigious **National fair (2015) organised by Initiative for Research & Innovation in Science (IRIS)** subject to their selection for both the exhibitions.

The above information may be brought to the notice of all concerned, particularly the science faculty in the school and the students. In case of off-line registration the request for participation along with the enclosed registration form, registration fee and other details may be sent to the above mentioned address before due date. For any other information in this regard, you may contact the Education Officer**,** at **2014.scienceexhibition@gmail.com**.

You may also send any specific suggestions or observations in this regard to the undersigned at the above e-mail address.

Regards,

Yours Sincerely

Sd/-
Dr. Sadhana Parashar
Director (Academics, Research, Training and Innovation)

Enclsoure: 1. Details of Sub themes
2. Registration Forms

Copy to below mentioned respective Heads of Directorates/KVS/NVS/CTSA with a request to disseminate the information to all concerned schools under their jurisdiction:

1. The Commissioner, Kendriya Vidyalaya Sangathan, 18-Institutional Area, Shaheed Jeet Singh Marg, New Delhi-110 016.
2. The Commissioner, Navodaya Vidyalaya Samiti, B-15, Sector 62, Insitutional Area, Noida-201309.
3. The Director of Education, Directorate of Education, Govt. of NCT of Delhi, Old Secretariat, Delhi-110 054.
4. The Director of Public Instructions (Schools), Union Territory Secretariat, Sector 9, Chandigarh-160 017.
5. The Director of Education, Govt. of Sikkim, Gangtok, Sikkim – 737 101.
6. The Director of School Education, Govt. of Arunachal Pradesh, Itanagar-791 111.
7. The Director of Education, Govt. of A&N Islands, Port Blair-744 101.
8. The Secretary, Central Tibetan School Administration, ESS ESS Plaza, Community Centre, Sector 3, Rohini, Delhi-110 085.
9. All the Regional Officers of CBSE with the request to send this circular to all the Heads of the affiliated schools of the Board in their respective regions.
10. All Assocaited Professor & Addl. Directors / Assistant Professors & Joint Directors / Deputy Direcotor (Examination & reforms)
11. The Research Officer (Tech.) with the request to put this circualr on the CBSE website.
12. The Joint Secretary (IT) with the request to put this circular on the CBSE website.
13. The Library and Information Officer, CBSE.
14. PS to Chairman, CBSE, Delhi
15. PS to Secretary, CBSE, Delhi.
16. PA to Secretary, CBSE.
17. PA to Professor & Director (Academics, Research Trainign & Innovation) CBSE.
18. PS to Director (Spl. Exams.), CBSE, Delhi.
19. PRO, CBSE

Dr. Sadhana Parashar
Director (Academics, Research, Training and Innovation)

CBSE SCIENCE EXHIBTION 2014 - 15

Details of Sub-Themes for preparation of Exhibits and Models

Given below are number of ideas for designing the exhibits on different sub-themes in the context of the main theme. However, these ideas are only suggestive in nature. Participants are free to design exhibits based on other related ideas on the given sub-theme.

Sub Theme-1

Community Health and Environment

The main objectives of this area are: to bring awareness among the children about health and factors affecting our health; to explore new scientific ,technological and bio-medical inventions in prevention and cure; to analyse the role of self and society in keeping our environment healthy in order to maintain good health and promote innovative ideas for better management.

The exhibits/models in this area may pertain to:

- various levels of good health and ill health;
- factors affecting the health and resulting ailments in the body;
- infectious and non-infectious diseases, relationship with causative factors and their sources;
- innovative control measures at different levels/roles of various agencies;
- presenting medical assistance and facilities of rural/urban and gender aspects;
- ways to raise awareness and sensitise people to be careful in health matters, explore the possibilities and make use of the facilities available;
- development of knowledge-base and understand new scientific, technological aids in bio-medical area;
- presentation of known facts and research findings in different medical systems like Indian, Modern, Homeopathy, Ayurvedic etc.;
- lifestyle and its relationship with good and bad health based on known facts and researches;
- demonstration of the role of traditional knowledge of herbal products for community health; etc.
- improved methods of sanitation and appropriate technology for waste disposal, both biodegradable and non-biodegradable;
- common prophylactic measures available and advantages of inoculation and vaccination;
- need for appropriate measures for family planning and welfare;
- ideas for developing low-cost nutritious food;
- occupational hazards to health and innovative techniques to overcome them; general awareness about community medicine;
- new medical diagnostic and therapeutic tools;
- improvised aids for visually impaired, hearing impaired, physically challenged persons, etc;
- need to curb menace of alcohol consumption, smoking ,drug abuse etc.
- genetic studies;
- developing simple technologies for diagnostics and environmental problems monitoring; etc.

Sub Theme – 2

Landmarks in Science and Mathematics

The main aim of this area is to make our school children and teachers aware of the milestones in science and mathematics that have contributed for a sustainable world. The exhibits / models in this area may pertain to:

- developing innovative experiment or design of models/exhibits on the landmarks discovery and invention in science and mathematics;
- significant contributions to the advancement of science and technology;
- policies, programmes and schemes in science and mathematics that have a significant impact on human life;
- scientific and mathematical applications, that have a wide ranging impact on issues such as agriculture, energy, health, environment , space ,industry, communication, education etc;
- effective and efficient ways of communicating an experiment that revolutionise scientific and mathematical ideas;
- cost effective demonstration of known facts and research in science and mathematics;
- impact of scientific and mathematical ideas on other subject areas such as medicine, psychology, social science etc;
- contribution of science and mathematics for economic growth, mass literacy, eradication of poverty and malnutrition; etc.

Sub Theme – 3

Information and Communication Technology

The main objectives of this area are: to promote innovations in knowledge networks involving information and communication technology in all segments of the society; to promote children to think, reason and communicate to solve problems; to understand effective use of information and communication technology for a variety of purposes.

The exhibits and models in this area may pertain to:

- developing innovation designs/models of multimedia equipment /materials and packages for children with special needs, especially visual and audio impairment;
- exploring uses/applications of information and communication technology in generating employment /eradicating illiteracy;
- technologies of emerging web designs;
- projects against attack aimed on information services/cyber security/cyber war;
- effective and efficient ways of communicating scientific and mathematical ideas and concepts;
- technologies in forecasting and warning of cyclones, floods and storms;
- better information and public address systems in the event of disaster to prevent chaos and confusion;
- improvised / improved devices for effective communication between various emergency services-medical, police, military and other agencies/ bodies/committees;
- use of satellites in providing information pertaining to meteorology, communication, remote sensing, etc;

- applications in education using computer as an educational tool; simulations in science, mathematics, etc;
- other emerging areas in information and communication technology.

Sub Theme – 4

Energy- Resources and Conservation

This area is expected to make children think of various ways and means for making efficient use of available energy resources and also new techniques/methods of using and conserving energy from both conventional and nonconventional sources. The exhibits/models in this area may pertain to:

- various ways of harnessing geothermal energy such as energy from hot springs/ geothermal desalinisation/geothermal heating – controlling heating and cooling of a building using underground heat by vertical/ horizontal loops/geothermal power/electricity generated from naturally occurring geological heat sources;
- design of green building/environment friendly building which harvest energy, water and materials;
- green roof technologies/roof mounted solar technologies such as solar water heater, solar lighting system;
- innovative designs of domestic hydroelectric generator;
- methods of heat retention in materials/heat control in the design of house;
- solar cooker/solar distiller/solar dryer for food processing/solar heated houses;
- studies of variation in sunshine intensity at a given place for developing indigenous method of its usage etc;
- projects for measuring availability of solar/ wind energy in a given area;
- wind mill/water mill for grinding grains/drawing water from the well and to generate electricity;
- water sensitive urban design to mitigate water shortage;
- water crisis management;
- use of tidal waves/ocean currents/salinity gradient for generating electricity;
- energy from biomass such as seaweeds, human/animal wastes, keeping in view environmental concerns;
- improvised technologies for effective usage of bio-fuels;
- innovative designs of bio gas/bio mass plant;
- low cost liquid fuel (bio-ethanol, bio-methanol from cellulose biomass by improvising conversion techniques);
- bio energy for poverty alleviation;
- impact of bio-energy on food security;
- designs of fuel-efficient automobiles/ machines;
- innovative designs of internal combustion engine which can function on various bio fuels;
- production of electrical energy from mechanical energy/chemical/biological/ nuclear resources;
- mechanism of extraction, storage and processing of fossil fuels;
- effects of landscaping and architecture on energy consumption etc.

Sub Theme – 5

Transport

The main objective of this area is to make general public and children in particular aware about the issues and concerns of the present transportation system and to promote innovations for an efficient transport system. The exhibits/ models in this area may pertain to:

- improvised/indigenous technique for efficient transport in rural/urban areas;
- fuel efficient/pollution-free designs of automobiles/other vehicles;
- use of innovative/inexpensive/locally available materials/designs for construction/maintenance of roads/railway tracks;
- innovative ideas for efficient management of road, rail, water and air transport systems;
- preparedness for disaster management-both natural and man-made ;
- GPRS and satellites enabled vehicular movement and transportation;
- design and functioning of modern devices of transportation;
- designs for making existing operation of transportation more efficient;
- exploring uses/applications of transport in generating employment/eradicating illiteracy;
- improvised/improved devices for effective transport between various emergency services, namely medical, police, military and services, namely medical, police, military and
- other administrative bodies/committees;

Sub Theme – 6

Waste Management

The main aim of this area is to make our school children and teachers realise the need for managing the unsustainable disposal system of waste material generated from industry and domestic household and also new technique/methods for waste disposal. The exhibits/models in this area may pertain to;

- various ways of waste disposal such as landfill, incineration etc;
- cost effective and environmental friendly waste management;
- various ways/methods/techniques of recycling waste materials;
- various ways/methods/techniques of extracting useful resources from waste materials;
- low cost waste management system;
- improvised/improved devices for effective and efficient waste management system;
- issues involved in nuclear, biological, medical and chemical waste management;
- Issues related to management of marine pollution, ocean dumping, eutrophication, marine debris, thermal pollution, algal boom, micro-plastic etc
- implication of nanotechnology (nanotoxiology and nano-pollution);
- improvised and innovative techniques / methods of harnessing energy from waste material.
- technique of separating/extracting harmful biological/chemical/nuclear waste and their storage;
- technique and processes for reducing waste generation;
- efficient and effective methods /technique of waste handling and transportation;

CBSE REGIONAL LEVEL SCIENCE EXHIBITION, 2014 -15
REGISTRATION FORM

1. Name of the School ----------

2. Complete address (including state)with Tel.no./ Fax/ e-mail ----------
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3. Region ----------

4. Title of the Exhibits/ Projects ----------
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5. Sub-theme of the exhibit (see enclosed information) (i) ----------
(ii) (If applicable)----------

6. Details of registration fee/ draft

Draft Number and dated ----------

Amount and Bank ----------

7. Brief write up of the Exhibit/ Project including

(The complete write-up of the exhibit not to exceed 250 words. It is mandatory to submit the same at the time of registration)

(a) Scientific Principle
(b) Method/ Procedure followed
(c) Unique features of the exhibit
(d) Applications in different domains of life
(e) Further scope of the exhibit/ project

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8. Name of the participant students

a. ----------

b. ----------

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9. Name of the escort teacher (with mobile no.)----------

Principal's Signature_____

Full Name ----------
Mobile Number _____