Government of Goa  
State Council of Educational Research and Training  
Alto-Porvorim, Goa 403521.

Tel: 0832-2417276, 2413649  e-mail: scertgoa@gmail.com

No.DE/SCERT/WISF/87/Part-V 19613  Date: 3rd September 2015

To,

The Heads of Secondary and  
Higher Secondary Schools with Science Streams

Sub: - State Level Western India Science Fair 2015-2016.

Sir/Madam,

You may be aware that the State Council of Educational Research & Training, Goa, in collaboration with Goa Science Centre, Miramar, Goa and Nehru Science Centre, Mumbai, will organize State Level Western India Science Fair with the broad objective to stimulate and motivate the Secondary and Higher Secondary School Students (VIII to XII) to explore new horizons in the field of Science. The Western India Science Fair attempts to help the students to evolve a practical approach towards the problems in Science. The students will be required to prepare the projects on any scientific theme having a bearing of scientific and technological development to mankind. Such small scale model making, exhibit fabrication, will help these future scientists and technocrats of our State to take up bigger challenges.

Western India Science Fair is organized at two levels viz.  

1. State Level  
2. Zonal Level

1. The State Level Science Fair will be organized at Goa Science Centre, Miramar for the selection of three individual projects, three team projects and three teaching aids projects to participate at the Zonal Western India Science Fair 2015.

2. The Zonal Level Western India Science Fair will be organized by the Nehru Science Centre, Worli, Mumbai at Mumbai.

STATE LEVEL SCIENCE FAIR

PARTICIPANTS

a. Students Projects

The students from Std. VIII to Std. XII Science can take part in the fair. They are requested to prepare Science models/exhibits on any topics given in the guidelines under the heading “Topics for the Fair” a bearing on Scientific and Technological development to mankind and to participate with it in the exhibition.
The exhibits will be on display for other students and general public for a period of three days.

b. **Teaching Aids**

The teaching aid competition is open to Secondary and Higher Secondary School Science Teachers. The topic for the teaching aid should be from the syllabus of students from Std. VIII to Std. XII Science and as per the topics given in guidelines under the heading “Topics for the Fair”.

**Classification of Projects**

School can participate in all the three projects.

1. **INDIVIDUAL PROJECTS** – Each School may participate in the fair with one student and one guide teacher.

2. **TEAM PROJECTS** – In this competition each school may participate in the fair with a maximum of one school project along with two students and one teacher.

3. **TEACHER PROJECT** – This project being for the teachers only, each school may participate with one teaching aid accompanied with one teacher only.

**Selection Procedure**

Selection of projects for higher stage will be done on following basis.

<table>
<thead>
<tr>
<th></th>
<th>Individual Project</th>
<th>Team Project</th>
<th>Teacher Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative ability</td>
<td>30</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Scientific thoughts &amp; engineering goals</td>
<td>30</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Thoroughness</td>
<td>15</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td>Skill</td>
<td>15</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Clarity</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Teaching Value</td>
<td>-</td>
<td>-</td>
<td>15</td>
</tr>
<tr>
<td>Team Work</td>
<td>-</td>
<td>16</td>
<td>-</td>
</tr>
</tbody>
</table>

All classified projects will be selected by a panel of three judges and will be awarded with cash prizes on the last day of the exhibition. Further the first three Projects in each Category will be required to participate in the Zonal Level Western India Science Fair at Mumbai from 16-12-2015 to 19-12-2015 which will be compulsory.
PRIZES: - It is proposed to award the following prizes at State Level Science Fair.

INDIVIDUAL PROJECTS:

First Prize  Rs. 2,000/-
Second Prize Rs. 1,500/-
Third Prize  Rs. 1,000/-
Fourth Prize Rs. 750/-
Fifth Prize  Rs. 500/-

TEAM PROJECT:

First Prize  Rs. 2,000/-
Second Prize Rs. 1,500/-
Third Prize  Rs. 1,000/-
Fourth Prize Rs. 750/-
Fifth Prize  Rs. 500/-

TEACHER PROJECT – TEACHING AIDS:

First Prize  Rs. 2,000/-
Second Prize Rs. 1,500/-
Third Prize  Rs. 1,000/-
Fourth Prize Rs. 750/-
Fifth Prize  Rs. 500/-

The State Level Science Fair will be held at the Goa Science Centre, Miramar, on 30th November 2015 to 2nd December 2015.

Timing: On 30th November the participants shall report at the Venue at 9.30 a.m. The exhibition will be inaugurated at 11.30 a.m. and shall remain open for public till 5.00 p.m. On 1st and 2nd December 2015, the timing will be from 10.00 a.m. to 5.00 p.m.

TRAVELLING EXPENSES:

The State Council of Educational Research & Training will bear the actual expenses relating to the travel of students (Student’s concessional fair) from the school to the place of exhibition and back for all the three days. However, the expenses towards TA/DA of teachers will have to borne by their respective schools.
WESTERN INDIA SCIENCE FAIR PARTICIPANTS

The winner from the State Level Western India Science Fair will be allowed to participate in the Western India Science Fair, Mumbai with three individual projects, three Team Projects and three Teachers Teaching Aids.

Date of Zonal Level Western India Science Fair 2015 – 2016

Dates : 16th December 2015 to 19th December 2015

Venue : Nehru Science Centre,
      Dr. E. Moses Road,
      Worli, Mumbai 400 018

Judgement : The criteria of the judgment will be the same as prescribed at State Level Science Fair.

PRIZES for Western India Science Fair:

Student/team Project:

1st Prize (individual) : Rs. 5000/- (1 no.)

1st Prize (team of two participants) : Rs. 3000/- each

Guide teacher of 1st Prize winner (individual) : Rs. 2000/- (1 no.)

Guide teacher of 1st Prize winner (team) : Rs. 2000/- (1 no.)

School of 1st Prize winner (individual) : Rs. 5000/- (form of kits & books)- 1 no.

School of 1st Prize winner (team) : Rs. 5000/- (form of kits , books & CDs)- 1 no.

State Best Award (Expect two 1st prize winning states) : Rs. 4000/- (1 no.)

Guide Teacher of State Best Prize Winner : Rs. 2000/- (1 no.)

School of State Best Prize Winner : Rs. 3000/- (form of kits , books & CDs ) (1 no.)

Teachers project :

1st Prize (individual) : Rs. 2000/- (1 no.)

2nd Prize (individual) : Rs. 1500/- (1 no.)

3rd Prize (individual) : Rs. 1000/- (1 no.)

TA/DA:-

The traveling expenses for the participating students from their respective schools to the venue of WISF and back will be borne by the State Council of Educational Research & Training (only Student’s concessional fare will be paid). However the expenses towards TA and DA of the teacher will have to be borne by their respective schools. Expenses relating to the organization of the Fair e.g.
Hospitality, lodging and boarding in case of students and only lodging in case of teacher participants, sight seeing and organization of training sessions will be borne by the Nehru Science Centre, Mumbai. It is made clear that Nehru Science Centre, Mumbai will not be able to make any arrangements for any extra persons like Peon, Clerk, other family members etc. along with participants (1/2 student/s and one guide teacher with students project and one teacher with teaching aid).

You are, requested to submit the entry in enclosed proforma I for Individual Project and Team Project and proforma II for Teaching Aid to the Director, State Council of Educational Research & Training, Porvorim so as to reaches this office latest by 12th November, 2015.

Yours faithfully,

[Signature]

[N.G. Honnekerl]
Director,
State Council of Educational Research & Training,
Alto-Porvorim, Goa

Copy to:

1) The Director of Education,
Directorate of Education, Porvorim-Goa

2) Dy./Asstt. Director of Education,
North/Central/South Educational Zone,
Mapusa/Panaji/Margao

3) All A.D.E.I.'s in Goa

4) The Curator,
Nehru Science Centre,
Worli, Mumbai.

5) The Project Coordinator,
Goa Science Centre
Marine Highways
Miramar, Goa
GUIDELINES:

1. **Topic for the Fair:**

- **Physics:**
  Theories, principles and laws governing energy and the effect of energy on matter – solid state, optics, acoustics, particle, nuclear, atomic, plasma, super conductivity, fluid and gas dynamics, thermodynamics, semiconductors, magnetism, quantum mechanics, biophysics etc.

- **Computer Science:**
  Study and development of computer hardware, software, engineering, internet networking and communications, graphics (including human interface), simulations/virtual reality or computational science (including data structures, encryption, coding and information theory).

- **Mathematics:**
  Development of formal logical systems or various numeral or algebraic computations and the application of these principles – calculus, geometry, abstract algebra, number theory, statistics, complex analysis and probability.

- **Engineering:**
  Technology, projects that directly apply scientific principles to manufacturing and practical uses – civil, mechanical, aeronautical, chemical, electrical, photographic, sound, automation, marine, heating and refrigeration, transportation, environmental engineering, etc.

- **Environmental Science:**
  Study of pollution (water and land) sources and their control, ecology etc.

- **Bio-Chemistry:**
  Chemistry of life processes – molecular biology, molecular genetics, enzymes, photosynthesis, blood chemistry, protein chemistry, food chemistry, hormones etc.

- **Chemistry:**
  Study of nature and composition of matter and laws governing it – physical chemistry, organics chemistry (other than biochemistry), inorganic chemistry, materials, plastic, fuels, pesticides, metallurgy, soil chemistry etc.

- **Earth & Space Sciences:**
  Geology, mineralogy, physiography, oceanography, meteorology, climatology, astronomy, speleology, seismology, geography etc.

- **Botany:**
  Study of plant life-agriculture, agronomy, horticulture, forestry, plant taxonomy, plant physiology, plant pathology, plant genetics, hydroponics, algae etc.
2. **Who can Participate?**
   Students from standard VIII to XII from Indian schools can participate in the Western India Science Fair 2015 – 2016 through the District/State/ UT level competitions.

3. **What is Expected?**
   Considering the high level of competition at various stages and prestige of the Fair, the projects must have **innovation, uniqueness, originality**, quality and research potential which would reveal something new. It must be **investigatory** in nature. The researcher must maintain a diary of stages of experimentation and data. Help of a research scientist, teacher or parent could be taken as a guide.

4. **How to Conceive a Project?**
   (i) **Selection of topic**: Pick up a subject out of the given topics and pick a problem/idea you want to study/investigate or develop.
   (ii) **Literature Review**: Go to libraries or Internet, if you have, and learn everything you get on your problem/idea. Observe related events and look for unexplained or unexpected results. Discuss with professionals in the field.
   (iii) **Organize**: Arrange everything you have learnt and narrow down your hypothesis.
   (iv) **Guide**: choose your guide/sponsor/qualified scientist who could guide you in your project.
   (v) **Make a Timetable**: Make a strict calendar of your activity with the help of your guide. Enough time should be given to experimentation.
   (vi) **Plan Experiment**: Once the research plan has been drawn, write your researching procedure, exactly describing your method of experiment, steps etc. Discuss with your sponsor/guide.
   (vii) **Experimentation**: After a careful thought of experimental design, keep notes of every experiment, measurement and observation. Try all variable possibilities.
   (viii) **Examine Results**: After completion of experimentation organizes your findings. If you got expected results as per your hypothesis, analyze the data and draw conclusions.
   (ix) **Modify Experimental set up/project**: After you have succeeded, put up your project in presentable form for the Fair. Display information, results and write the research paper, give title, contents, experiments, explanation, conclusion, acknowledgement and references.

5. **Project Parameters: Display & Safety Regulations**
   Maximum Size: 122 x 76 x 200 cms.

**ELECTRICAL REGULATIONS**

(i) Finalists requiring 220 Volt AC electrical circuits must provide a ISI mark 3 – wire extension cord which is no more than nine feet in length and which is appropriate for the load and equipment.

(ii) Electrical power supplied to projects and, therefore, the maximum allowed for projects is 220 Volt, AC single phase, 50 cycles. Maximum circuit amperage/wattage available is determined by the electrical circuit capacities of the exhibit hall and may be adjusted on site by the competent authority of the Centre.
c) Organise your presentation
d) Make your display eye catching
e) Correctly present your well-constructed project

7. **Project Report**

Each project must be supplemented by a research report giving (i) purpose of experiment, (ii) hypothesis, (iii) Procedures used, (iv) data, (v) conclusion, (vi) usefulness of the experiment, (vii) references, (viii) acknowledgement.
NEHRU SCIENCE CENTRE
(National Council of Science Museums)
Dr. E. Moses Road, Worli,
MUMBAI – 400 018

INDIVIDUAL PROJECT/TEAM PROJECT
WESTERN INDIA SCIENCE FAIR 2015 – 2016

1. Name(s) of the student(s) : 1) __________________________
   (In Block Capital Letters) 2) __________________________

2. Whether member of any Science Club : Yes / No
   If yes, write the name of the Science Club : __________________________

3. Name of the Guide Teacher : __________________________

4. Name & Address of the School : __________________________
   School Telephone No. __________________________ Fax: __________________________
   Email: __________________________

5. a) Name of the Project : __________________________
   b) Under which topic (please refer to topic for the fair) : __________________________

6. Scientific Theme of the Project : __________________________

7. Material/Apparatus used : __________________________

8. Brief Description (Please highlight uniqueness of the project) : (Maximum 500 words)
   a) Working details : ( 250 words )
   b) Synopsis : ( 250 words )

9. Diagram : ( Attach separate sheet )

10. Application/usage : __________________________

11. Approximate cost of the Project : __________________________

   Maximum space for display : Table 4’ x 2’ with a panel on backside
   Power: AC/DC.

13. Special requirements e.g. water, dark room etc. : __________________________

14. Signature of the students : 1) __________________________
   2) __________________________

15. Signature of the Guide Teacher : __________________________

(Seal of the School) (Signature of the Principal)

PLEASE SUBMIT ONE ENTRY FORM FOR ONE PROJECT
NEHRU SCIENCE CENTRE
(National Council of Science Museums)
Dr. E. Moses Road, Worli,
MUMBAI – 400 018

TEACHING AID
WESTERN INDIA SCIENCE FAIR 2015 – 2016

1. Name of the Teacher Participant
   (In Block Capital Letters)
   : 1) ____________________

2. Whether member of any Science Club
   If yes, write the name of the Science Club
   : Yes / No
   : ____________________

3. Name & Address of the School
   School Telephone No.
   : ____________________
   : ____________________ Fax : ________
   : E-mail : ____________________

4. Name of the Teaching Aid
   : ____________________

5. Scientific Theme of Teaching Aid
   : ____________________

6. Material/Apparatus used
   : ____________________

7. Brief Description
   (Please highlight uniqueness of Teaching Aid)
   a) Working details
   b) Synopsis
   : (Maximum 500 words)
   (attach separate sheet, if necessary)
   : ( 250 words )
   : ( 250 words )
   : ( Attach separate sheet )

8. Diagram
   : ____________________

9. Application/usage
   : ____________________

10. Approximate cost of the Teaching aid
    : ____________________

11. Requirement for display
    (Maximum space for display)
    : Area: _______ * _______ mtrs.
    Power: AC/DC.
    : Table 4' x 2' (with a panel on backside)
    : ____________________

12. Special requirements
e.g. water, dark room etc.
    : ____________________

13. Signature of the Teacher Participant
    : ____________________

(Seal of the School) (Signature of the Principal)