

State Council for Science, Technology and Environment, H.P.
CHILDREN'S SCIENCE CONGRESS-2010
Web-Site: <http://www.himachal.nic.in/hpscste>

School students from class six to class 10+2 can participate in the CSC activities.
The following activities are to be organized during Children Science Congress-2010

1. State level Organizing Committee meeting: 8th July, 2010

2. Sub-division level Children Science Congress- 2 days

- Science Quiz for three categories viz. Sr. Secondary, Senior and Junior level students
 - Science Activity Corners
 - Innovative Science Model competition for 9th class to 12th class students (One Category)
- Time Schedule: Up to 24th September 2010

3. District level Children Science Congress - 3 days

- i) Skit
- ii) Science Quiz
- iii) Scientific Project Report Competition
- iv) Science Activity Corners
- iv) Innovative Science model Competition for 9th class to 12th class students (One Category)

Focal Theme for Scientific Project: "Land Resources: Use for Prosperity, Save for Posterity"

Sub themes: Three

- | | |
|----------------|---------------------------------------|
| Sub theme-I. | (a) Know your land |
| | (b) Functions of Land |
| Sub theme-II. | (a) Land Quality |
| | (b) Anthropogenic Activity on Land |
| Sub theme-III. | (a) Sustainable use of Land resources |
| | (b) Community knowledge on Land use |

Time schedule: Up to 28th October 2010

4. State level Children Science Congress -4 days

- i) Same as per District Level Children Science Congress
 - ii) Science Exhibition
- Time schedule: November 4-7, 2010

Organized by:

State Council for Science, Technology & Environment, B-34, SDA Complex,
Kasumpti, HP - 171009 & Department of Education, H.P. - 171001

Sponsored by:

National Council for Science & Technology Communication [NCSTC] Department
of Science & Technology, Govt. of India, & NCSTC-NETWORK

5. National level Children Science Congress-5 days

Scientific Project Report *Time schedule December 27-31, 2010.*

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CHILDREN SCIENCE CONGRESS-2010

Focal Theme: "Land resources: Use for Prosperity, Save for
Posterity"

PROGRAMME CHILDREN SCIENCE CONGRESS-2010



Organized by: State Council for Science Technology &
Environment, B-34, SDA Complex, Kasumpti-171009
& Department of Education, H.P.-171001

Sponsored by: National Council for Science & Technology
Communication [NCSTC], Department of Science &
Technology, Govt. of India & NCSTC-Network

CHILDREN'S SCIENCE CONGRESS-2010

Focal Theme: 2010: "Land resources: Use for Prosperity, Save for Posterity"

Organized by:

State Council for Science, Technology & Environment, H.P.
Department of Education, Himachal Pradesh.

Supported & Catalysed by:

Rashtriya Vigyan Evam Prodyogiki Sanchar Parishad,
Department of Science & Technology, Govt. of India & NCSTC – Network.

The State Council for Science, Technology and Environment, Himachal Pradesh in collaboration with the Department of Education, National Council of Science & Technology Communications, Department of Science & Technology Govt. of India & NCSTC Network, H.P. organises Children's Science Congress for students of 6th to 12th classes at Sub-division level, District level and State level. The winners of Scientific Survey Report Competition at state level participate in the National Children's Science Congress. In this programme, emphasis is laid on learning by doing and on field projects to be undertaken by Children under the guidance of teachers. The programme has been successful in creating interest in Science among students & teachers in the State. The programme is organised at four levels: Subdivision level, District level, State level & at National Level. The programme up to district level is to be organised by the Department of Education through Dy. Director (Education), Science Supervisors/ Science Consultant as per programme guidelines.

Objectives:

1. To provide a forum to the children to pursue their natural curiosity and to quench their thirst for creativity.
2. To effect a change in the way science is taught and learnt at schools, by relating the learning process to the physical and social environment around.
3. To encourage children throughout the country to visualise future of the nation and help in building a generation of sensitive, responsible citizens.
4. To stimulate scientific temperament and learn the scientific methodology for observation, collection of data, experiment, analysis and then arriving at conclusion.
5. To orient the students of the state for competing in National level Science competitions.

Children's Science Congress (CSC) will be organized for the students of middle schools, High and Senior Sec. Schools at Sub division, District and State level. Only the Scientific Project Report Competition will be held at National level.

The programme for the year 2010 is summarized as follows:

I. Sub-Division level CSC

The TA/DA of teachers & students participating in Sub division level will be borne by the concerned school. Council will provide the funds for prizes & organisation only.

1. Science Activity Corners

In the Science Activity Corners simple experiments/ activities related to physics, chemistry, biology, mathematics, astronomy, origami, explaining miracles scientifically, low cost experiments, Science through puppetry, Rocket making, Aerodynamics, Making products from waste, etc. will be organized.

Categories: 5

Senior Secondary: 10+1 & 10+2

Senior (Urban): 9th to 10th

Senior (Rural): 9th to 10th

Junior (Urban): 6th to 8th

Junior (Rural): 6th to 8th

Prizes: Best 2 performers x5 categories @ Rs. 75/- each for two talented students from each category.

Total No. of Prizes: 10

Amount: Rs. 750/-

1.1 Guidelines

Participation of students from each school:

The number of maximum students from each school who can participate at sub-division level will be as follows:

Senior Secondary School 3 Students (1 Sr. Sec., 1 Sr. Group & 1 Jr. Group)

High School 2 Students (1 Sr. Group & 1 Jr. Group)

Middle School 1 Student. (1 Jr. Group)

- A trained resource person will organize the corner. Registration of students will be done category wise. The students will perform activities in a group of 25 students (maximum) and each group of student will go to every activity corner. At sub-division at present minimum of ten corners are proposed which could be increased based on the availability of trained teachers. Besides this all the science students of local school, where sub divisional level function is held can also participate in the science activity corners.
- Students can also bring innovative science ideas/ models/ or can explain through posters.
- **Selection of talented students for Distt. level CSC**

The maximum number of students participating at sub-division level in Science Activity Corner is limited to maximum 100 students including those participating in Quiz Competition also. The number of maximum Science Activity Corners at different level will be as follows:

Sub-divisional level 10

District Level 10-15

State level 15-20

- **Selection of Students for District level CSC**
 - i) Each Science Activity Corner, Co-ordinator will identify five talented students from each category and list will be submitted to coordinator confidentially.
 - ii) The coordinators of each corner will ensure that students will not know that they are being observed.
 - iii) The identified talented students from all the corners will be the coordinators of Activity Corners to identify innovation.
 - iv) Two best students from each category will participate in the District level CSC.
- 2. Science Quiz Competition**

The Science Quiz can have maximum of six rounds and must cover all the branches of Science including knowledge about science discoveries. There must be visual interactive round and at least two rounds of scientific experiments, which will test the intelligence of student rather than memory.

Categories: 5

Sr. Secondary:	10+1 & 10+2
Senior (Urban)	9th & 10th
Senior (Rural)	9th & 10th
Junior Group (Urban)	6th to 8 th
Junior Group (Rural)	6th to 8 th

Prizes: First Rs. 150x5=750

Second Rs. 120x5=600

Third Rs. 100x5=500 (No consolation prize)

Total No. of Prizes: 15

Amount: Rs. 1850/-

3. Innovative Science Model Competition: Categories: 1 (9th Class to 12th Class)

Prizes: First Rs. 100x1=100

Second Rs. 80x1=80

Third Rs. 50x1=50

Total No. of Prizes: 3

Amount: Rs. 230/-

3.1 Guidelines: There will be open competition at sub-division level. For innovative science model competition there will be one category viz. students of 9th class to 12th class. The students should present working science model with a concept note in Hindi/English/handwritten or typed along with diagram or sketch on the prescribed format. The model should be low cost with original work. It should not repeat the conventional science principals. It should be creative innovative and applied in concept. The following areas are identified for this competition, or the students can have any other innovative ideas.

- Model of fuel efficient automobile/machines
- Model on better information & public address system in the event of disaster to prevent chaos & confusion
- Model of sanitation system which is socially economical & environmentally sustainable
- Model of residential complex having self sufficient water harvesting system

4. Science Exhibition by organizing School:

1. The students organizing school & adjoining schools will plan a Science exhibition with low cost and innovative concepts.
2. The local Govt. Departments, Universities & NGO's Research Institutions will be requested to organize the exhibition during CSC.

5. Popular Science Lecture:

A popular Science lecture will be organized during inaugural session.

6. Cultural Event:

Participating students & teachers should also organize local cultural event during CSC in the evening.

7. Guidelines for prizes:

The prizes for CSC at sub-division, district level CSC should be preferably in the form books/ low cost science kits.

II. DISTRICT LEVEL CHILDREN SCIENCE CONGRESS-2010

Two students from each category from all Science Activity Corners, the first, second & third prize winner from Science Model Competition and team standing first in Quiz Competition at Sub-division level CSC will participate in the District level CSC. **(In case of Districts with 2 sub divisions first & second team will participate).**

1. Science Activity Corners

Same as per Sub-division level CSC programme

Categories: 5

Senior Secondary: 10+1 & 10+2

Senior (Urban): 9th to 10th

Senior (Rural): 9th to 10th

Junior (Urban): 6th to 8th

Junior (Rural) : 6th to 8th

Prizes: Best 2 performers 5 categories @ Rs. 100/-

Total No. of Prizes: 10

Amount: Rs. 1000/-

Participation in State level CSC.

Two students from each category will participate in State level from each district. The selection will be as per procedure for sub division CSC.

2. Scientific Project Report Competition

Focal Theme for 2010: "Land resources: Use for Prosperity, Save for Posterity"

Sub themes: Three

- Sub theme-I. (a) **Know your land**
 (b) **Functions of Land**
- Sub theme-II. (a) **Land Quality**
 (b) **Anthropogenic Activity on Land**
- Sub theme-III. (a) **Sustainable use of Land resources**
 (b) **Community knowledge on Land use**

Categories: 5

Sr. Secondary:	10+1 & 10+2
Senior (Urban)	9th & 10th
Senior (Rural)	9th & 10th
Junior (Urban)	6th to 8 th
Junior (Rural)	6th to 8 th

Prizes: First Rs. 150/-
 Second Rs. 100/-
 Third Rs. 80/- (No consolation prize)

Total No. of Prizes: 33

Amount in Rs. 3630/-

3. Science Quiz Competition: Categories: 5

Sr. Secondary:	10+1 & 10+2
Senior (Urban)	9th & 10th
Senior (Rural)	9th & 10th
Junior (Urban):	6th to 8 th
Junior (Rural):	6th to 8 th

(No Sub theme wise/ categorization for juniors)

Prizes: First Rs. 200 x 5 = Rs.1000/-
 Second Rs. 150 x5 = Rs. 750/-
 Third Rs. 100 x 5 = Rs. 500/- (No consolation prize)

Total No. of Prizes: 15

Amount: Rs. 2250/-

4. Science Model Competition: Categories: 1 (9th class to 10th class)

In this competition at District level students with 1st, 2nd and 3rd prize winners from Sub-division Level will participate.

Prizes: First Rs. 150x1=150/-
Second Rs. 100x1=100/-
Third Rs. 80x1=80/-

Total No. of Prizes: 3

Amount: Rs. 330/-

5. Science Skit/ Play Competition:

This programme will be held at District & State level only. Science Skit on any of the following themes can be presented along with typed /hand written Script with names of scriptwriter and players [maximum 5 only]. The technical committee set up at district level will scrutinize the scripts.

Suggestive Sub-themes:

- i) Contribution of Indian Scientists in the Development of Planet Earth
- ii) Conservation of Planet Earth
- iii) Any other issue of relevance in science.

Skit/play on these ideas must be able to send a message and create interest among audience. A script of the play has to be submitted. The title of skit must be specific.

Categories: There will not be any Senior/ Junior Categorization for the skit/play.

Students from Class 6th to 10+2 can participate.

Prizes: First Rs. 150 x 5 = Rs. 750/-
Second Rs.100 x 5 = Rs. 500/-

Third Rs. 80 x 5 = Rs. 400/- (No consolation prize)

[Each participating student will get equal prize].

Total No. of Prizes: 15

Amount in Rs. 1650/-

5. Science Exhibitions at District Level CSC

- i) The District organizer will contact Govt. Departments like Deptt. of Agriculture/ Horticulture, Deptt. of Health, Project Officer Himurja, Universities or Research Stations, Scientific Institutions for organising the exhibition.
- ii) The Council will also assist the organizers in planning the Science Exhibition at Distt. Level.

6. Cultural Heritage

This programme is intended to depict the cultural heritage of Himachal Pradesh. Teams participating from different Sub-divisions will present song/ folk dance/ or any other item depicting cultural heritage in the evening. The District organizers may consider getting the events sponsored.

III. STATE LEVEL CHILDREN SCIENCE CONGRESS-2010

OPEN COMPETITIONS:

1. Science Activity Corners

Same as per Sub-division level CSC programme

Categories: 5

Senior Secondary : 10+1 & 10+2

Senior (Urban) : 9th to 10th

Senior (Rural) : 9th to 10th

Junior (Urban) : 6th to 8th

Junior (Rural) : 6th to 9th

Prizes: Best 2 performers 5 categories @ Rs. 200/-

Total No. of Prizes: 10

Amount: Rs. 2000/-

2. Scientific Project Report Competition

Focal Theme for 2010: "Land resources: Use for Prosperity, Save for Posterity"

Categories: 5

Senior Secondary: 10+1 & 10+2

Senior (Urban): 9th & 10th

Senior (Rural): 9th & 10th

Junior (Urban): 6 th to 8th

Junior (Rural): 6 th to 8th

(No Sub theme wise/ categorization for juniors)

Prizes: First Rs. 250/-

Second Rs. 200/-

Third Rs. 150/-

Total Number of Prizes: 15

Amount: Rs. 9000/-

3. Science Quiz Competition:

Eligibility for participation in the State level CSC programme:

The team consisting of 2 students standing first in each Distt. Level CSC in each category will participate in the State level Competition.

Categories: 5

Senior Secondary: 10+1 & 10+2

Senior (Urban): 9th & 10th

Senior (Rural): 9th & 10th

Junior: (urban) 6 th to 8th

Junior: (urban) 6th to 8th

Prizes: First Rs. 250 x 2 = Rs. 500/-

Second Rs. 200 x 2 = Rs. 400/-

Third Rs. 150 x 2 = Rs. 300/- (No consolation prize)

Total No. of Prizes: 30

Amount: Rs. 6000/-

4. Science Model Competition:

Eligibility for participation in the State level CSC programme:

The students securing 1st 2nd and 3rd position from district level will participate in the State level competition. **Categories: 1 (9th class to 12th class)**

Prizes: First Rs. 250 x 1 = Rs. 250/-

Second Rs. 200 x 1 = Rs. 200/-

Third Rs. 150 x 1 = Rs. 150/- (No consolation prize)

Total No. of Prizes: 3

Amount: Rs. 600/-

5. Science Skit/ Play Competition:

This programme will be held at District & State level only

Categories: There will not be any Senior/ Junior Categorization.

Students from Class 6th to 10+2 can participate.

Prizes: First Rs. 250 x 5 = Rs. 1250/-

Second Rs.200 x 5 = Rs. 1000/-

Third Rs.150 x 5 = Rs. 750/- (No consolation prize)

(Each participating student will get equal prize).

Best Scriptwriter Rs. 250/-

Best Actor Rs. 250/-

Best Actress Rs. 250/-

Best Director Rs.250/-

Total Number of Prizes: 19

Amount: Rs. 4000/-

5. Mathematical Olympiad competition (No Urban/ Rural) :

This programme will be held at State level only

Categories: There will be Sr. Secondary, Senior & Junior Categorization.

Total Number of Prizes: 9

Amount Rs. 1800/-

State level Science Activity Corner, Training, Workshop for participating Teachers: (Two days) :

Science Activity Corner workshops for participating teachers will be organized in two groups. Each participating teacher has to participate in the Science Activity Corner workshop. The coordinator of workshop will identify five most innovative teachers.

7. Science exhibitions CSC:

- Science Activity Corner, Training workshop for participating teachers
- Astronomy Awareness Programme (Sky- watching)
- Amateur (HAM) Radio demonstration
- Science Exhibitions by different organisations
- Interaction of eminent scientists with students/ teachers
- Science Activity Corners on Miracle explaining
- Popular Science lectures.

8. Cultural Heritage:

The team from each district participating in the State level CSC will present a programme to highlight the Cultural heritage of the district during evenings. Only traditional folk dance/ or any other item will be allowed. The District organiser will submit a list of the cultural programme during registration.

9. TA/DA of students/teachers at State Level:

The amount of TA/DA of students/lectures participating in state level CSC will be given to Dy. Director of Secondary Education of the concerned district directly by the Council. The quota for the districts will be as follows:

Quota for students/Escorting teachers:

Districts	Number of Sub-divisions	Number of maximum students	Number of escort teachers	District Coordinators
Large districts such as Kangra & Shimla	7-8	42 students from each district	12 from each district	1 from each district
Medium such as Kullu, Solan, Chamba & Mandi	4-6	42 students from each district	10 from each district	1 from each district
Small such as Bilaspur, Una, Sirmour, Lahaul & Spiti, Kinnaur & Hamirpur	2-3	42 students from each district	8 from each district	1 from each district
Total	51	504	112	12

State level Children Science Congress programme - 2010

I. Science Activity Corners

II. Scientific Project Report Competition

Focal Theme for 2010: "Land Resources: Use for Prosperity, Save for Posterity"

Sub themes: Three

Sub theme-I. (a) **Know your land**

(b) Functions of Land

Sub theme-II.

(a) Land Quality

(b) Anthropogenic Activity on Land

Sub theme-III.

(a) Sustainable use of Land resources

(b) Community knowledge on Land use

III. Science Quiz Competition:

Eligibility for participation in the State level CSC programme:

The team consisting of 2 students standing first in each Distt. Level CSC in each category will participate in the State level Competition.

IV. Science Skit/ Play Competition:

This programme will be held at District & State level only

Categories: There will not be any Senior/ Junior Categorization. Students from Class 6th to 10+2 can participate.

V Innovative Science model Competition (9th class to 12th class):

This competition was introduced last year. There will be only one category viz. students of 9th class to 12th class. This completion will be held at Sub-division, District and State Level

Children's Science Congress.

VI. Mathematical Olympiad competition for participating students (No Urban/ Rural)

Categories: There will be Sr. Secondary, Senior & Junior Categorization.

VII State level Science Activity Corner, Training, Workshop for participating teachers (Two days)

Science Activity Corner workshops for participating teachers will be organized in two groups. Each participating teacher has to participate in the Science Activity Corner workshop.

VIII. Science exhibitions CSC.

- Science Activity Corner, Training workshop for participating teachers
- Astronomy Awareness Programme (Sky watching)
- Amateur (HAM) Radio demonstration, Science Exhibitions by different organisations
- Interaction of eminent scientists with students/ teachers Science Activity Corners on Miracle explaining
- Popular Science lectures.
- Earth quake resistant house by Appropriate Technology Centre, Sunder Nagar

IX. Cultural Heritage: Cultural evening by participants from different districts.

Science Activity Corners (Guidelines)

The TA/DA of teachers & students participating in Sub division level will be borne by the school. Council will provide the funds for prizes & organisation.

(a) Methodology:

In the Science Activity Corners simple experiments/ activities related to physics, chemistry, biology, mathematics, astronomy, origami, explaining miracles scientifically, low cost experiments, Science through puppetry, Rocket making, Aerodynamics, Making products from waste will be organized. A trained resource person will organize the corner. The students will perform activities in groups and each group of student will go to every activity corner. At sub-division at present minimum of ten corners are proposed which could be increased based on the availability of trained teachers. Besides this all the science students of local school, where sub divisional level function is held, can also participate in the science activity corners.

(b) **Participation of students from each school:** The number of maximum students from each school who can participate at sub-division level will be as follows:

Senior Secondary School:3 Students (1 Sr. Sec., 1 Sr. Group & 1 Jr. Group)

High School 2 Students (1 Sr. Group & 1 Jr. Group)

Middle School 1 Student (1 Jr. Group)

(c) **Selection of talented students for Distt. Level CSC:**

i) The maximum number of students participating at sub-division level in Science Activity Corner is limited to maximum of 100 students including those participating in Quiz competitions & science model competitions also. The number of Science Activity Corners at different level will be as follows:

Sub-divisional level 10

District Level 10-15

State level 15-20

ii) Each Science Activity Corner Co-ordinator will identify maximum of five talented students from each category.

iii) All the identified talented students from all the corners will be judged by a panel of three Judges to test the talent and innovation of students.

iv) Best two performers from each category will be selected to participate in the District level CSC. Maximum number of 10 students from all categories will participate in Distt. Level CSC.

(d) **Selection of Students for District level CSC**

1. Each Science Activity Corner, Co-ordinator will identify five talented students from each category.
2. All the identified talented students from all the corners will be judged by a panel of three judges to test the talent and innovation.
3. Two students from each category (Sr. Secondary, Sr. Group(Urban & Rural) Jr. Group(Urban & Rural) will be selected for district Level CSC.

Science Activity corners Guidelines for State level CSC

1. 10 students from each district, two from each of 5 categories (Sr. Secondary, Sr. (Urban), Sr. (Rural), Junior (Urban), Junior (Rural) will participate in state level CSC
2. Senior Secondary, Sr. (Urban) Sr. (Rural) will be divided into four Groups: S1, S2, S3, S4. Each group will consist of 20-25 students.
3. Junior category: Junior category will be divided into four groups: J1, J2, J3, J4. Each group will consist of 20-25 students.

4. Each group will be assigned one colour ribbon to be displayed with name slip
- | | | | | | |
|----|---|--------|----|---|--------|
| S1 | = | Red | J1 | = | Orange |
| S2 | = | Blue | J2 | = | Pink |
| S3 | = | Green | J3 | = | Brown |
| S4 | = | Yellow | J4 | = | Purple |
5. No incentive will be given in this activity. All participants will be given books/ kits.
6. The students participating in other competitions can join any Corner at the start of corner as per time schedule.
7. All students must attend all the corners.
8. Time Schedule for Science Activity students

1 st Day	2 nd Day			3 rd Day			4 th Day
4.00-5.00	10.00-1.30	11.30-1.00	2.30-4.00	10.00-11.30	11.30-1.00	2.30-4.00	10.00-11.30
S1	J4	J3	J2	J1	S4	S3	S2
S2	S1	J4	J3	J2	J1	S4	S3
S3	S2	S1	J4	J3	J2	J1	S4
S4	S3	S2	S1	J4	J3	J2	J1
J1	S4	S3	S2	S1	J4	J3	J2
J2	J1	S4	S3	S2	S1	J4	J3
J3	J2	J1	S4	S3	S2	S1	J4
J4	J3	J2	J1	S4	S3	S2	S1

Annexure-II

Science Quiz Competition

The Science Quiz must cover all the branches of Science including knowledge about science discoveries. Categories: 4 There will only be Senior Secondary, Sr. Urban, Sr. Rural & Junior Categories. There is no urban/ rural classification for Jr. Category.

Prize is to be shared equally by two team mates, Prize to be given in the form of books preferably. Certificates for each participant & winner will be given.

Instructions for organizers:

1. One entry (a team of two students) for Senior or junior category can be sent by a school through Principal/ Headmaster to the Science Supervisor/organizer/ Deputy Director of Education of concerned district.
2. District organizers will select the number of teams through screening to be called for the competition if required.
3. If the numbers of teams are more than twenty, the teams are to be short listed by a written test. A screening committee is to be formed for this purpose. The Chemistry, Biology, Physics, Environment for screening test, question can be framed.

4. TA/DA of students & teachers will be borne by the concerned school at Sub division level CSC. (Out of Science fund/ Union fund or any other fund).
5. The SCST&E will only provide grant for prizes & organisation of programme at Sub division level CSC.
6. There will be four categories (Senior Secondary: 10+1 & 10+2, Senior [Urban]: 9th & 10th, Senior [Rural]: 9th & 10th & Junior: 6th to 8th).
7. One student from a school can participate only in one competition
8. A student coming first in any competition at State level will not be eligible to compete in the same competition & category of CSC for the next year.

Methodology & Guidelines for conducting Science Quiz:

1. The District organizer in consultation with H.P. State Council for Science, Technology & Environment will identify a panel of quizmasters for the district and submit to the Council along with their brief bio-data. The quizmaster should preferably be appointed out of the panel.
2. There will be one visual round and one or two Science activity rounds in which talent of student is tested rather than memory.
3. The quizmaster will prepare the quiz cards prior to the competition, incorporating latest questions. Visual rounds may also be incorporated.
4. The latest scientific developments must be incorporated while formulating the Quiz Cards.
5. A set of questions asked in the Quiz competition will be attached with the report of the programme.

Programme conduction:

The Science Quiz for Senior Secondary, Senior & Junior is to be organised in a number of parallel sessions. Scorer & a timekeeper will keep the record.

Eligibility for participation in the District level CSC programme.

The team standing first in sub-division competition will participate in the Distt. level competition except in case of districts where the number of sub divisions are 2. In such Districts, the teams standing I & II will participate in the District level Quiz competition. For Senior Secondary category there will be screening.

Annexure-III

Science Skit/ Play Competition

This programme will be held at District & State level only

Science Skit on any of the following themes can be presented with typed /hand written Script with names of script writer and players (5 only)

Sub Themes:

- Contribution of Indian Scientists in the Development of Planet Earth
- Conserve the Planet Earth
- Any other issue of relevance to science.

Skit/ Play on these ideas must be able to send a message and create interest among audience. A Script of the Play has to be submitted. The title of Skit must be specific.
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Methodology:

Time: (Maximum 15 minutes)

1. The scripts for the Science/ Skit play competition will be invited by the District organizer.
2. Each school can send only one script of Skit/ Play as per theme.
3. The screening committee will select only five teams from all over the district.
4. The selected teams will be invited to compete at Distt. Level function.
5. The screening Committee will have members with background in Science, Dramatics, and Writing.
6. The programme is to be conducted in the evening.
7. The number of students should be 3-5 maximum. In case participants exceed 5 it will lead to the disqualification of team.

8. The team can also be selected out of the students participating in other competitions.
9. The Scriptwriter will accompany the team.
10. Skit/ Play on these ideas must be able to send a message and create interest among audience.
11. A Script of the Play has to be submitted. The title of Skits must be specific.

Eligibility for the State level CSC:

The team standing first in district level CSC will participate at the state level CSC.

The Script of the Skit has to be submitted during State level CSC. Non-submission of the script will lead to disqualification of the team.

The prize is to be shared by all team members.

Annexure-IV

Guidelines for Innovative Science model Competitions:

There will be open competition at sub-division level. For innovative science model competition there will be one category viz. students of 9th class to 12th class. The students should present working science model with a concept note in Hindi/English/handwritten or typed along with diagram or sketch on the prescribed format. The model should be low cost with original work. It should not repeat the conventional science principals. It should be creative, innovative and applied in concept. The following areas are identified for this competition, or the students can have any other innovative ideas related to science.

- **Model of fuel efficient automobile/machines**
- **Model on better information & public address system in the event of disaster to prevent chaos & confusion**
- **Model of sanitation system which is socially economical & environmentally sustainable**
- **Model of residential complex having self sufficient water harvesting system**

GUIDELINES FOR SCIENTIFIC PROJECT REPORT COMPETITION

The most important natural resource, upon which all human activity is based since time immemorial, is land. Land resource is our basic resource. Throughout history, we have drawn most of our sustenance and much of our fuel, clothing and shelter from the land. It is useful to us as a source of food, as a place to live, work and play. It has different roles. It is a productive economic factor in agriculture, forestry, grazing, fishing and mining. It is considered as a foundation of social prestige and is the basis of wealth and political power. It has many physical forms like mountains, hills, plains, lowlands and valleys. It is characterized by climate from hot to cold and from humid to dry. Similarly, land supports many kinds of vegetation. In a wide sense, land includes soil and topography along with their physical features of a given location. It is in this context that land is defined closely with natural environment. However, it is also regarded as space, situation, and factor of production in economic processes.

Focal Theme for 2010: "LAND RESOURCES: USE FOR PROSPERITY, SAVE FOR POSTERITY"

The focal theme for National Children's Congress-2010 has been decided to be "**RESOURCES: USE FOR PROSPERITY, SAVE FOR POSTERITY**". The focal theme has the following three sub-themes.

Sub theme-I. (a) KNOW YOUR LAND

(b)FUNCTIONS OF LAND

Introduction: (a) KNOW YOUR LAND

Understanding land resources, its potential, utilization and management of any area reflect the levels of development and standard of living of the locality. Improper use of land due to anthropogenic pressure has created many problems like shrinkage of arable land due to encroachment, decline in



fertility due to over use of inorganic fertilizers without soil test information and land degradation. In land resource management approach, spatial distribution of land use, intervention of local and scientific decision support system and control and conservation measures are of primary importance. Land may be defined as a physical environment consisting of relief, soil, hydrology, climate and vegetation in so far as they are determined by the land use. Value of land depends on its size, location, distance from the market and nature of potential use besides productivity.

The land system of our country is affected by influences of man interventions well as various natural processes. The removal of top soil, deforestation and banned agricultural practices would, many a time, force us to live in environmentally adverse conditions. The environmental degradation of land makes our country stressful situations, which has become concern for us to think over and act for sustainable development. Our future generation is in stake as a result of interference with natural processes causing many situations unfit for our well being and also for the well being of future generation. Therefore, the database on the past and present land use practices will lead us to predict the future pattern of change which will enrich us towards sustainable development.

(b) FUNCTIONS OF LAND

Land resources representing largely the soil and water phases contribute significantly to the development and sustenance of various living components in terms of flora and fauna. It is our basic resource alongside air and water. It is one of the marvellous products of nature without which there



would be no life. It is a productive economic factor in agriculture, forestry, grazing, fishing, mining and various other industrial and social activities. Land systems function through general capabilities of soils that are important for various agricultural, environmental, nature protection, landscape architecture and urban applications. Soil performs multiple functions starting from providing physical, chemical and biological support for plant growth. It provides

habitat for variety of flora and fauna including human. Lives. It acts as natural filter and buffered media against abrupt changes occurring in it. It also acts as a sink of organic carbon and thus global CO₂ flux. It is the platform for manmade structure and perpetuates cultural heritage. Land acts as a reservoir of rich gene pool. But it is amazing to know that till date only 1-10% of total soil microorganisms can be isolated and characterized. So, there is a tremendous potentiality to explore and exploit rest of unknown soil residents for the benefit of human community.

Soils provides a platform for manmade structures like buildings, road, highways, mall, multiplex etc.. It is the platform for civil and engineering works. Soil itself is a raw material for many small-scale industries like pottery, terracotta, tiles, brick etc. However, in many cases we are wasting much of our valuable land resources for various industrial uses. Time has come to assess the magnitude of damage we are causing our land resources through such activities and to find the alternative uses or remedies.

Suggested Projects:

1. Agro-Ecological mapping of a locality
2. Land use pattern analysis
3. Know the vertical distribution of soil layers of your locality
4. Knowing water holding capacity of soil of the locality
5. Know your land – soil, water and land-scape relationship
6. Study of soil profile under different land use
7. Fluctuation of water tables in any season of the year of the locality/region
8. Distribution & quantification of water bodies for water use planning
9. Delineation and characterization of local watershed based on topography, drainage network and local knowledge
10. Distribution and mapping of important minerals of the region
11. How does organic component influence different soil properties?
12. Land as a habitat of soil fauna
13. Role of aquatic land system in reducing emission of CO₂
14. Soil is a Buffered Medium
15. Earthworm as a soil indicator
16. Restoration of microhabitat
17. Earthworm as a bio-indicator
18. Evaluation of plant biodiversity and preparation of herbarium

Sub theme-II. (a) LAND QUALITY

(b) ANTHROPOGENIC ACTIVITY ON LAND

(a) LAND QUALITY

Our land resources perform various functions like providing base for vegetation, water bodies, habitat for human, animals, birds and other organisms; producing food and fiber, maintaining or enhancing water quality; partitioning water flow and sequestering carbon. Land quality is defined as the capability of land to perform these functions without becoming degraded. Majority of these functions of land are, however, determined by the quality of soil. Maintaining and improving the quality of the Nation's soils can increase farm productivity, minimize use of nutrients and pesticides, improve water and air quality, and help store greenhouse gases. Soil quality is defined as the continued capacity of soil to function as a vital living system, within ecosystem and land-use boundaries, to sustain biological productivity, promote the quality of air and water environments and maintain plant, animal and human health. In short, soil quality can be defined as the "fitness for use" or "Capacity of the soil to function". There are several interacting processes occurring among the components of soil as well as with atmosphere. Soil is the storehouse of major, secondary and micronutrients required for plant growth and also for growth of soil micro-flora and fauna. Through different chemical, biochemical and microbial processes, these nutrient elements are released slowly as per the requirement of plant and other organisms. Plant is incapable to take up nitrogen directly from atmosphere even though it contains about 77% nitrogen. Some of the bacteria living in soil fix atmospheric nitrogen to make it available for higher plants. Similarly, soil contains significant amount of phosphorus, but in unavailable form. Various chemical and biochemical processes (mediated by phosphorus solubilizing bacteria) make this nutrient available to plant.

Indicators to assess land quality

Land use

Land use is an indicator reflecting how and to what extent society is responding to meet its changing needs and goals or to adapt to changing environmental conditions. Ideally, it is recommended that our geographical land area should have 33% forest cover. However due to increase in demographic pressure, the area under forests and agriculture is reducing continuously; consequently, area under dwellings and industry is increasing. Over the years, such interference of anthropogenic activities is considered as the major cause of land degradation. About 85 million ha of agricultural land are reported to be suffering from various degrees of soil degradation processes such as erosion, salinization, alkalization, water logging, desertification, loss of organic matter, loss of nutrients, soil compaction, entry of toxic pollutants etc.

Soil Quality

Since all agricultural activities are directly or indirectly, affected by how the “soil is handled”, its health becomes the prime concern before one can address human and livestock health issues. Managing soil is a formidable challenge to ensure productivity, profitability and national food security. Soil quality can be assessed by a number of physical, chemical and biological attributes / processes. Relevance of one or more unfavorable soils conditions for long periods leads to unsustainability of agricultural system. Major issues of soil quality include:

- i) *Physical degradation* – where, physical properties of soil such as bulk density, structure, water holding capacity, depth etc. are changed un-favorably. Physical degradation of soil are caused by compaction due to use of heavy machinery like combined harvester, tractor, laser leveller, intensive cultivation, puddling, water logging and soil erosion.
- ii) *Chemical degradation* – where chemical properties like pH, electrical conductivity, soil organic matter content, available plant nutrient status, base saturation, cation exchange capacity, phosphate fixing capacity etc. are affected resulting in decline in soil fertility. Chemical degradation is caused by wide nutrient gap between nutrient demand and supply, imbalanced use of fertilizers, emerging deficiencies of secondary and micronutrients, limited / no use of organic manures, acidification and aluminum toxicity in acid soils, salinity and alkalinity. While salinity problems are often associated with irrigation, salinity problems can also occur in dry land areas where rainfall is insufficient to leach salts from the soil.
- iii) *Biological degradation of soil* – where biologically mediated soil processes like nitrogen fixation, phosphate solubilisation, nutrient mineralization etc are affected. Biological degradation due to organic matter depletion caused by rise in soil temperature, loss of biodiversity due to agricultural chemicals like herbicides, pesticides, fertilizers etc. Biological degradation is perhaps the most serious form of soil degradation because it affects the life of the soil and soil may not be able to cycle nutrients and transform harmful chemicals or substances to nontoxic waste or to combat plant pests and diseases. The microbial community is continually adapting to the environment, and can function as indicators of changes in soil quality.
- iv) *Soil pollution* from industrial wastes, excessive use of pesticides and heavy metal contamination resulting in deterioration of water and crop produce quality.

(b) ANTHROPOGENIC ACTIVITY ON LAND

Anthropogenic (Greek word, meaning manmade) effects, processes or materials are those which are derived from human activities. Since all agricultural activities are directly or indirectly, affected by how the “soil is handled”, its health becomes the prime concern before one can address human and livestock health issues. Managing soil is a formidable challenge to ensure productivity, profitability and national food security. Soil quality can be assessed by a number of physical, chemical and biological attributes / processes. Relevance of one or more unfavourable soils conditions for long periods leads to un-sustainability of agricultural system. Major effects of anthropogenic activities on land resources are as follows:

Land degradation: Land degradation, defined as lowering and losing of soil functions, is becoming more and more serious worldwide in recent days, and poses a threat to agricultural production and terrestrial ecosystem. Land degradation includes loss of top soil, physical changes like damage of soil structure (compaction), chemical changes like salinization, sodification, acidification, deposition of heavy metals and an overall declination of fertility and productivity of soil. It is estimated that nearly 2 billion ha of soil resources in the world have been degraded which includes approximately 22% of the total cropland, pasture, forest, and woodland. Though climatic and geogenic processes are major driving forces for land degradation, the impact of anthropogenic factors can not be overruled particularly when local situations are taken into consideration.

The industrial wastes contribute largely to the chemical degradation of the valuable land resources. Improper waste management renders the surrounding areas vulnerable to heavy metal deposition in soil, water bodies, rivers as well as ground water. Rapid urbanization also aggravates the problem of land degradation still further.

Loss of biodiversity: Biodiversity refers to totality of genes, species, and ecosystems of a region. India at present has 2.4% of land area of the world but contributes 8% species to global diversity. The Western Ghat, the Himalayas and the Indo-Burma regions are among the thirty four Hotspots identified worldwide as regards to vulnerable biodiversity resources. Biodiversity loss is a common phenomenon associated with land use and land cover change. When a natural forest land is transformed to farm land, the loss of tree species along with numerous associated flora, fauna and micro organisms is immediate and complete. Similarly, increasing grazing pressure on unmanaged pasture and rangelands causes severe damage to the biodiversity. Furthermore, the market driven intensive cropping system with overuse of chemicals leaves the agricultural biodiversity under severe threat. Even the so called eco- friendly technology of energy consumption like adaptation of bio-fuel when injudiciously followed has added tremendous pressure to the natural biodiversity of through dramatic shift in the land use pattern.

Green house gas load to atmosphere: Atmosphere is the mirror to our abuse to land resources. Every anthropogenic activity of concern to the precious land resources leaves an imprint in the atmosphere. There has been global ecological concern for increased concentration of carbon dioxide by 31%, methane by 151% and nitrous oxide by 17 % since 1750 which is incidentally coincided with the pace of land use change enforced by industrial revolution, urbanization, large scale live stock farming and by also modernization of agriculture. This has direct and indirect link with climate change and the problems associated with it. Though geological forces are assumed have big impact on increasing concentration of green house gases in the atmosphere, the human intervention can go a long way to ameliorate the adverse impact of increased GHG concentration. The soil-plant-animal system is an effective source of the important green house gases to the atmosphere. An efficient management of this system through judicious land use planning can increase the buffering capacity of the land resource.

Water contamination: Water is an important component of our land resource. The water which sustains the human life in the planet may become a source of diseases and a root cause of calamities if contaminated chemically or biologically. The quality as well as quantity of available water resource is regulated to a great extent by anthropogenic activities like industrialization, urbanization as well as by crop and livestock farming through unscientific disposal of solid and liquid wastes. The concentrations of heavy metals like, arsenic, lead, chromium etc in drinking water are in pockets due to a combination of geological and anthropogenic reasons. On the other hand a huge amount of harmful organic and synthetic effluents are leached to the surface and ground and surface water as farm land and urban wastes. The interrelation of water pollution with land use change must be analyzed for detailed understanding.

Hydrology: The hydrology refers to the study of water dynamics in surface and subsurface system. The natural catchments of watersheds are disturbed through rampant expansion of settlement areas. The technological intervention has made unimaginable geomorphologic changes possible at a faster rate. The large water bodies and hill tops are not spared. Even the natural river paths are modified by under man made projects. The rate of infiltration is impaired by rigorous anthropogenic activities enhancing the surface run off loss after each rainfall event. This has aggravated the water logging and flash flood in many urban and semi urban areas. On the other hand the ground water recharge is severely affected. This coupled with overexploitation of ground water to meet the demand from agriculture, industry and human settlement has made the situation worse day

by day. Although many of these problems are not solely from anthropogenic activities, these are certainly being aggravated by human activities. More over, it is the responsibility of every human being to sustain the land resources for the future generation through judicious land use planning.

Suggested Projects:

- 1 Determining maximum loading limit for copper in Agriculture land.
- 2 Evaluation of groundwater for domestic and agricultural purposes.
- 3 Suitability of soils for growing crops.
- 4 Evaluating filtration capacity of soil.
- 5 How to minimize fluoride and nitrate toxicity in drinking water?
- 6 Arsenic contamination in groundwater.
- 7 Waste disposal management and land quality.
- 8 Soil pH and nutrient availability to crop
- 9 Pesticide effects on land quality.
- 10 Strategies/ways to improve soil organic matter.
- 11 Influence of vegetation cover on microclimate.
- 12 Changing trend in Agricultural Land use pattern.
- 13 Influence of mulch on soil physical properties.
- 14 Population pressure on land: Quality of life.
- 15 Effect of land use options on erosion loss of surface soil.
- 16 Study of water table through dug well monitoring.

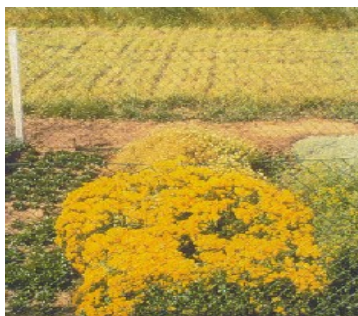
Sub theme-III.

(a) SUSTAINABLE USE OF LAND RESOURCES

(b) COMMUNITY KNOWLEDGE ON LAND USE

Introduction:

(a) SUSTAINABLE USE OF LAND RESOURCES



The world's land resources that include soil, water and vegetation are under great pressure to meet the food, fiber and housing needs of ever growing population. In addition, the land resources are also expected to provide services related to biodiversity, clean water and air and swallow vast amount of wastes produced by living beings. In nature different processes within the earth's surface generally occur in a cyclic manner thus maintaining a balance between different components of the ecosystems. For example, carbon cycles between soil, vegetation, ocean and atmosphere. However, human

intervention through industrial activities and change of land use has perturbed the carbon cycle leading to increased carbon dioxide concentration in the atmosphere. Not only air, human activities have also resulted in degradation of soil and water resources. Land degradation has threatened the livelihood of millions of people and future food security. Therefore, the greatest challenge before us today is to manage the land resources in a sustainable manner so that these are maintained without degradation for present and future generations

Major uses of land resource include forestry, pasture and grasslands, agriculture, housing and urban and industrial activities. The guiding principle for sustainable land management depends on ecological and economic interrelationships. The choice of land use and the practices for its sustainable management are site-specific and depend on local needs of the population. Soil is an important natural resource and its sustainable use is generally linked to agricultural management, though it performs multifarious functions. In relation to sustainable management one needs to know how agricultural management practices are influencing soil physical, chemical and biological parameters. Soil organic matter is considered a key constituent that influences most of the soil properties and governs the capacity of soil to perform ecosystem functions. The term soil organic matter is generally used to represent the organic constituents in the soil, including un-decayed plant and animal debris, their partially and completely decomposed products, and the soil microbial biomass. Soil organic matter, generally determined as organic carbon is taken as an index of soil fertility and crop productivity. Several factors, such as rainfall, temperature, vegetation and soil type determine the amount of carbon in soil. Due to land use changes such as deforestation, conversion of grasslands to agricultural land etc. soils have lost considerable amount of organic carbon. These losses of organic carbon from soils that are already of low fertility are clearly of concern in relation to future productivity. Sustainable management of soil requires that organic matter be maintained at an

optimum level governed by soil characteristics and climatic conditions. Management practices or technologies that enhance carbon input to soil and decrease output/decomposition of carbon lead to net carbon storage in soils. Sources of carbon input include the amount of above ground and below ground biomass returned to the soil, and addition of bio-solids such as animal manure, compost, sludge etc. Technologies for enhancing carbon input to soil include i) intensification of agriculture ii) increasing area under forests, and iii) agro-forestry. Agricultural intensification implies adoption of recommended management practices on prime agricultural soils while restoring degraded and marginal soils to productive land uses.

Management options that contribute to reduced decomposition or losses of carbon from the soil include conservation agriculture, reduced or no-tillage practices, mulch farming, and reducing bare fallow or increased cropping intensity. Croplands under no-till systems have been shown to increase soil C compared to more intensive tillage operations. In some climatic regions, land dedicated to annual crops can be planted with a grass or legume cover crop after harvesting the cash crop to protect the soil during fallow period. This increases the residue inputs to the soil and hence soil carbon storage.



Deforestation of land



For providing sustainable fertilizer management practices to increase crop productivity and minimize environmental pollution, soil testing has an essential role. The basic aim of the soil-testing is to provide recommendations to the farmers for economic and balanced use of fertilizers. Soil testing involves the analysis of soil samples in the laboratory for estimating

plant available nutrient status of soil. Based on soil test values, the soils are categorized as low, medium and high in supplying nitrogen, phosphorous and potassium to a growing crop. Analysis of other nutrients can also be carried out for diagnosing nutrient deficiencies. Fertilizer application based on soil testing usually leads to an increase in yields and profits by providing the correct and balanced amounts of nutrients.

Suggested Projects:

1. Environment Impact Assessment (EIA).
2. Rejuvenating the Earth: Organic Farming.
3. Solid Waste Management.
4. Evaluation of water pollution.
5. Monitoring water.
6. Urbanization-traffic Survey.
7. Evaluation of Niche (Living place).
8. Know your locality: Mapping Landscape/Land Use.
9. Know your school campus: Mapping and Bio-diversity.
10. Comparative Lifestyle: Obesity.
11. Environmental History through Timeline.
12. Documentation of Traditional Knowledge.
13. Natural Disaster Management.
14. Waste management, composting-vermiculture.
15. Survey of poultry wastes.
16. Environmental impacts of any projects/activities on society.
17. Water harvesting-school/institutional level, household level.
18. Campus biodiversity monitoring and mapping.
19. Stray animals,- behavioral attitudes towards caged animals-impact of animals towards society.
20. Energy audit at home and school.
21. Reduction in energy consumption by change in practices.
22. Mapping of energy needs & source.
23. Environmental impact of large power plants.
24. Assessing livestock value from energy perspective.
25. Biodiversity & Energy.
26. Social structure, gender, education & energy conservation.
27. Energy required to stay fit.
28. "Is burning an acceptable solution to waste management"?
29. Energy implications of food & diet.
30. Innovative solar energy applications.
31. Assessment of micro-hydro potential in hilly areas.
32. Assessment of wind potential for power generation in hilly areas.