



SCIENCE INDIA FORUM BAHRAIN

in association with

Embassy of India, Bahrain

“ N a t i o n a l I n d i a n C o n g r e s s - 2 0 1 0 ”



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Science India Forum Bahrain



**“ National Research Conference
(in India)**

**“ BAHRAIN STUDENT'S INNOVATION
(in Bahrain)**



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25th National Children's

- £ National Children's Science Congress (NCSC) is a nationwide Science Communication programme started in the year 1993
- £ National Council for Science and Technology Communication (NCSTC), Department of Science and Technology, Government of India organizes this program nationally through NCSTG Network, New Delhi.
- £ NCSC is an initiative of Department of Science and Technology, Government of India.



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Who is eligible to participate?

- £ Any child in the age group of 10-17 years can participate in the congress. It is not necessary that a participant should be a school/college student.
- £ A child scientist can not participate in the National Level CSC two times in the same age group.
- £ There will be 2 (two) age groups. Date for calculation of age is 31st December 2017.
 - Lower Group: 10 years to less than 14 years
 - Upper Group: 14 years to less than 17 years
- £ A group of children not exceeding five can do the project study under a teacher.

Age will be determined as on 31st December of the calendar year.



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Objectives

£ The main objectives of NCS&C:-

- Ø Stimulating scientific temper through the use and internalization of the method of science, i.e. observation, collection of data, experiments analysis and then arriving at conclusions
- Ø Encouraging the children to understand the environment, its problems and to help them to find feasible solutions by adopting the principle of 0 by .



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Nature of NCSC Projects

£ The NCSC projects are expected to-be

- ∅ Based on the theme provided by Department of Science & Technology
- ∅ Innovative, simple and practical.
- ∅ Representing teamwork
- ∅ Based on exploration of everyday life-situation.
- ∅ Involving Experimentation and/or field based data collection
- ∅ Having definite outputs, arrived through scientific methodology
- ∅ Related directly to community work in the local geographical area.
- ∅ Having follow-up plans.



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Incentives

- Ø Two best projects from each age group are allowed to participate in the National Science Congress
- Ø Selected projects at the national level will be provided financial support to undertake its developments, patent support and guidance, scientific/ technical consultancy, fabrication assistance, market information and networking with related research lab/institute etc.



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Focal Themes of last 10 years

- £ 2006 & 2007 *Biodiversity : Nurture nature for our future*
- £ 2008 & 2009 *Planet Earth : Explore, Share and Conserve*
- £ 2010 & 2011 *Land Resources : Use for prosperity, Save for posterity*
- £ 2012 & 2013 *Energy: Explore, Harness and Conserve*
- £ 2014 & 2015 *Understanding Weather and Climate*



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Focal Theme for 2016 - 2017

Focal Theme for 2016 - 2017
**SCIENCE, TECHNOLOGY & INNOVATION
FOR SUSTAINABLE DEVELOPMENT**

A large green word cloud shaped like a tree, filled with terms related to sustainability and environmental science. The words include "GREEN", "RECYCLE", "EARTH", "ORGANIC", "CONSERVE", "SUSTAINABLE", "RENEWABLES", "WATER", "TAKE", "LOW IMPACT", "REPLENISH", "MEADOWS", "SOLAR POWER", "RESPONSIBLE", "EARTH FRIENDLY", "OFF-SETTING", "WILDLIFE", "ENVIRONMENT", "RENEWABLES", "WATER", "TAKE", "LOW IMPACT", "REPLENISH", "MEADOWS", "SOLAR POWER", "RESPONSIBLE", "EARTH FRIENDLY", "OFF-SETTING", "WILDLIFE", "ENVIRONMENT", "RENEWABLES", "WATER", "TAKE". Below the word cloud, a group of diverse, colorful cartoon children are standing in a field of green grass, holding hands in a circle.

NATIONAL CHILDREN'S SCIENCE CONGRESS



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Sub Themes for 2016-17

£ National Resource Management

£ *Food and Agriculture*

£ *Energy*

£ *Health, Hygiene & Nutrition*

£ *Lifestyles and Livelihood*

£ *Disaster Management*

£ *Traditional Knowledge Systems*



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Criteria for Good Projects

S	Specific	The subject/issues of study must be specific
M	Measurable	The study must be measurable in quantitative / qualitative forms so that component of comparability is maintained
A	Appropriate	The topic must be appropriate to focal theme and sub-themes, along with field study area, methodology must be appropriate to the content considered for the study,
R	Realistic	The content of the study must be realistic along with the methodology adopted for the purpose
T	Time bound	Study must be carried out in limited time frame. The project activities may not destabilize the normal activity schedule of the Child



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वैज्ञानिक प्रतियोगिता



NCSC Official Website

<http://www.ncsc.co.in>

This website has all the information that you need to prepare the project.



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BAHRAIN STUDENTS INNOVATION CONGRESS

Methodology for Doing
a Good Science Project



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Goals

- “ Stimulate Scientific and Technological temper
- “ Communicate Science and Technology ó encourage involvement and intelligent scientific debate on current issues





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General points to be

- “ Team of 3 to 5 children (though rules specify a minimum of 2 children/team, group work would be ideal with 3 or more children)
- “ Do not impose higher scientific projects on children Higher level projects done by others to be presented by children , especially if the children can not understand/explain the principle behind the project/ concepts/methodology etc
- “ The project is to be done by the children role of the Guide teacher is to GUIDE and not to do the project by themselves



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- “ Remember that during the presentation, the questions will be directed to the child-scientists and not to the Guide Teacher.
- “ The process of doing the project is equally important as to the outcome of the project
- “ Only projects having an experimental component will be selected to the national level. Surveys can be one of the components of the project



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Scientific Method:

The scientific method is a way to ask and answer scientific questions by making observations and doing experiments

The steps of the scientific method are to:

Ask a Question

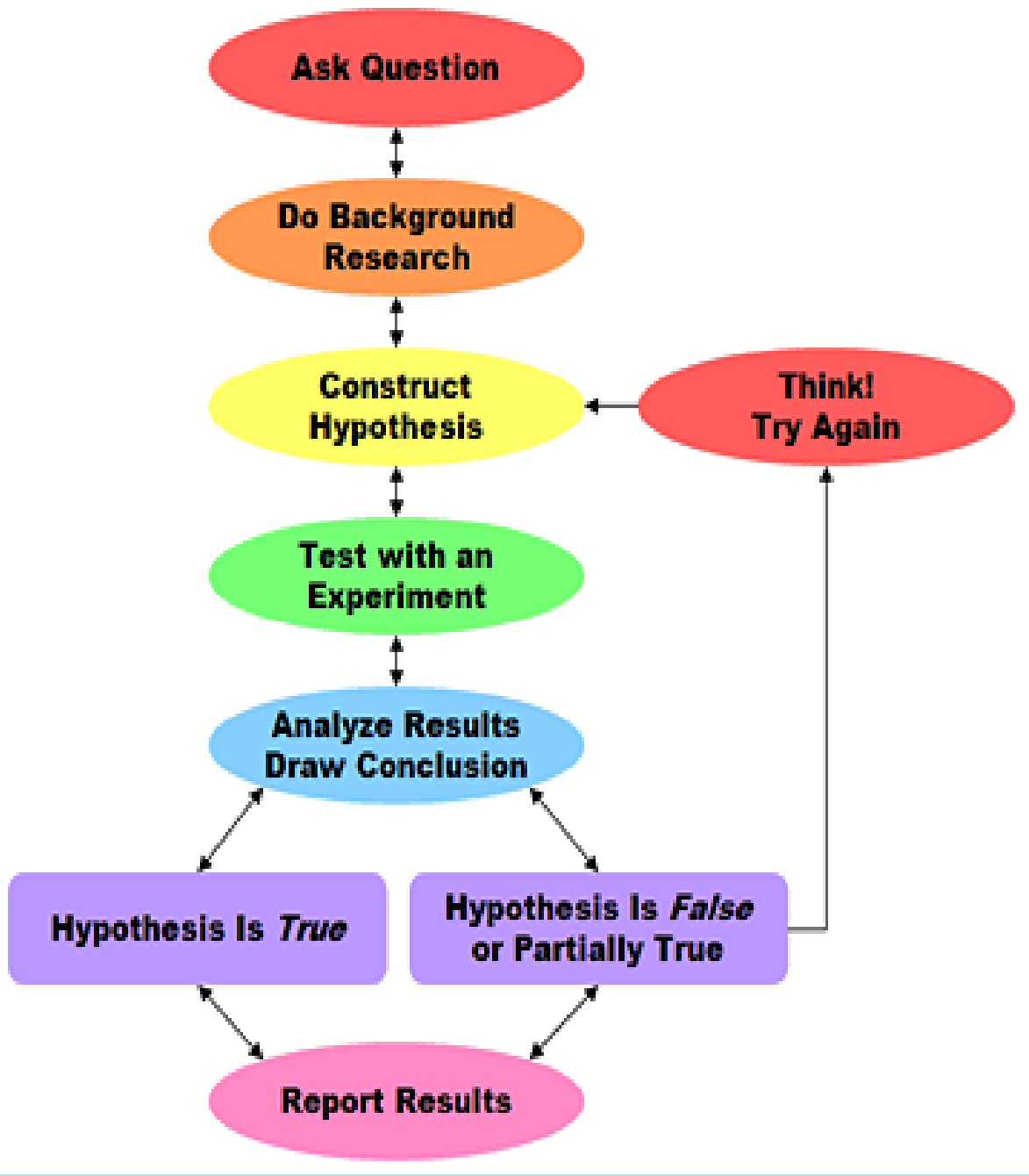
Do Background Research

Construct a Hypothesis

Test Your Hypothesis by Doing an Experiment

Analyze Your Data and Draw a Conclusion

Communicate Your Results





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Ask a Question:

The scientific method starts when you ask a question about something that you observe:

How, What, When, Who, Which, Why, or Where?

And, in order for the scientific method to answer the question it must be about something that you can measure, preferably with a number



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Do Background Research:

Do not reinvent the wheel..

Rather than starting from scratch in putting together a plan for answering your question, you want to be a savvy scientist using library and Internet research to help you find the best way to do things and ensure that you don't repeat mistakes from the past

Good References	Bad References
Come from a credible source	Come from a source with poor credibility
Not too old	Out of date
Not biased (eg. glorification)	Not objective and fair, biased towards one point of view
Free of errors	Prone to errors
Properly cite the original source of all information	Do not cite where the information came from
Easy for other people to find or obtain	Difficult for others to obtain



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Construct a Hypothesis

A hypothesis is an educated guess about how things work

"If [*I do this*], then [*this*] will happen."

You must state your hypothesis in a way that you can easily measure, and of course your hypothesis should be constructed in a way to help you answer your original question.

Eg. When you wash a bunch of leaves of a garden plant in a bowl of clean water, and if you get a change in colour of the water, the area has a lot of dust particles or could be a polluted area (which can be quantitatively measured by setting up an experiment)

Test Your Hypothesis by Doing Experiment

Your experiment tests whether your hypothesis is true or false. It is important for your experiment to be a fair test.

You conduct a fair test by making sure that you change **only one factor** at a time while keeping all other conditions the same.

You should also **repeat your experiment several times** (at least **three times**) to make sure that the first results weren't just an accident. Write the **experimental procedure** like a **step-by-step recipe** for your science experiment.

Repeating a science experiment is an important step to verify that your results are consistent and not just an accident. For a typical experiment, you should plan to repeat it at least **three times** (more is better.)

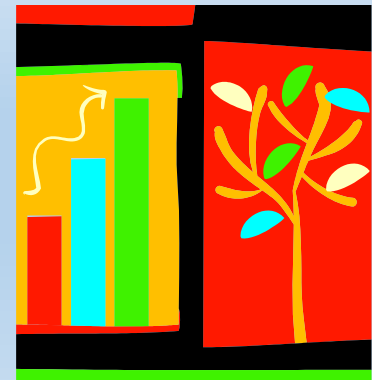
If you are doing an experiment that involves testing or surveying different groups, you won't need to repeat the experiment three times, but you will need to test or survey a sufficient number of participants to ensure that your results are reliable.

Analyze Your Data and Draw a Conclusion

Once your experiment is complete, you collect your measurements and analyze them to see if your hypothesis is true or false.

Scientists often find that their hypothesis was false, and in such cases they will construct a new hypothesis starting the entire process of the scientific method over again.

Even if they find that their hypothesis was true, they may want to test it again in a new way.



Communicate Your Results

To complete your CSC project you will communicate your results to others in a final report and/or a display board

Professional scientists do almost exactly the same thing by publishing their final report in a scientific journal or by presenting their results on a poster at a scientific meeting

DATA ANALYSIS AND GRAPHS.

Review your data. Try to look at the results of your experiment with a critical eye. Ask yourself these questions:

Is it complete, or did you forget something?

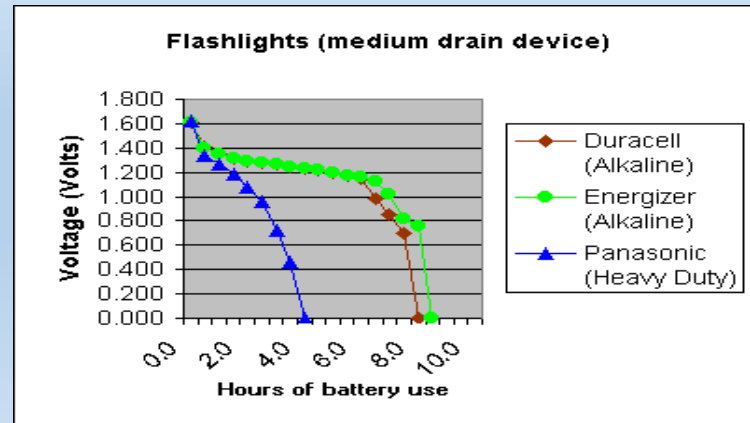
Do you need to collect more data?

Did you make any mistakes?

Calculate an average for the different trials of your experiment, if appropriate.

Make sure to clearly label tables and graphs. And, include units of measurement (Litres, Centimeters, grams, etc.).

Place your independent variable on the x-axis of your graph and dependent variable on the y-axis



How to write the Final Report ?

Title page.

Abstract An abstract is an abbreviated version of your final report. (See the slide on how to write the Abstract)

Table of contents.

Question variables and hypothesis

Background research. This is the Research Paper you wrote before you started your experiment)

Materials list

Experimental Procedure

Data analysis and discussion. This section is a summary of what you found out in your experiment, focusing on your observations, data table, and graph(s), which should be placed at this location in the report.

Conclusions

What you want draw from your project, Ideas for future research. Also state any feedback that you carried out like awareness creation, conducting meetings etc.

Acknowledgements.

Bibliography

Write the abstract section last, even though it will be one of the first sections of your final report



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POSTERS/DISPLAY

Organize your information like logically that your audience can quickly follow the thread of your experiment/Project.

Use a BIGGER font size. Write in bigger letters so that people can see your charts from a distance itself.

The title should be big and easily read from across the room

Give your main tables/data analysis etc. leading to the Conclusion. A graphical representation/picture speaks a thousand words!

Project Title:
Project Team
/State
Name of School

Objectives:

Methodology:

Work Plan
Experimental
Design./Methods
Observations
Compiled Data
Table

Data Analysis
Graphical
Representation

Conclusions
Follow up / Any
other matter of
relevance.
Photographs (3
nos).



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Throughout the process of doing the science project, you should keep a journal containing all of your important ideas and information. This journal is called a [laboratory notebook](#) or a LOGBOOK.

REMEMBER

LOG BOOK IS MANDATORY FOR ALL NCSC PROJECTS AND SHOULD BE BROUGHT WHILE MAKING THE PRESENTATION!



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Log book

Have datewise entries in the book. Use the log book regularly and systematically.

Put your name, address, phone numbers etc.

Number the pages.

Record the date and time of every observation.

) neatness of the log book.

3/19 FRI H₂O pots
Green tray: WO#20-1 ✓
3/20 SAT
Green tray WO#6-1
3/22/99 MON: Plants have really taken off since SAT.
Fertilized all plants w/ Peters 20-20-20 (?)
200 ml/pot - seedling
100 ml/pot - unemerged pots
Removed #88 RO-0H-1 Insect feeding?
3/23/99 Lights still off @ 7:30 AM, forgot to reset time
clocks after yesterday's power outage
3/24/99 Removed #54 RO-0H-3 Virus?
3/25/99 Green Tray - WO#8-1
3/26/99 " WO#20-1 H₂O pots ~450ml
w/plants, ~300ml for ungerminated acorns
3/29/99 1 CO#6 in Green Tray



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It should be used during all phases of your project jotting down ideas or thoughts for a project, phone numbers, contacts or sources and prices of supplies, book references, diagrams, graphs, figures, charts, sketches, or calculations.

5/20/99 2:20 pm clear, almost cloud free day
light levels monitored

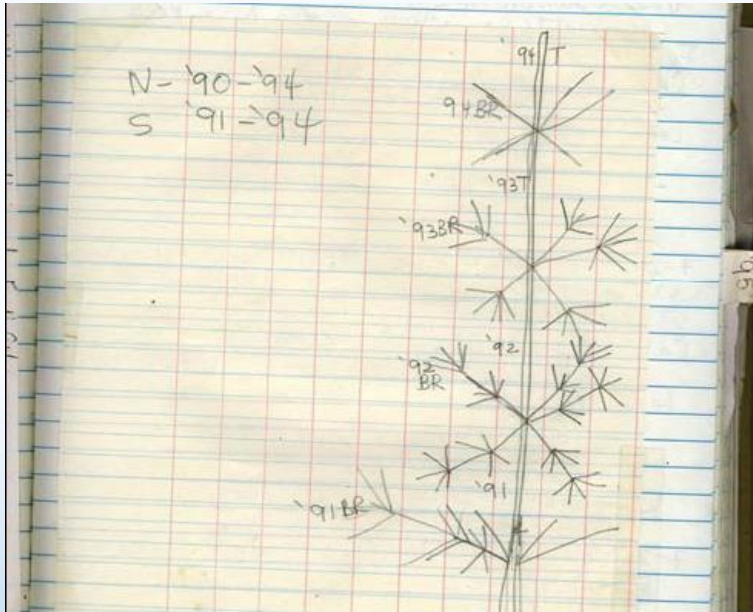
W

Text	6	5	4	
92% ③ of shaded	1	2	3	
80% ②	6	5	4	
	1	2	3	
75% ①	6	5	4	
S	1	2	3	→ N



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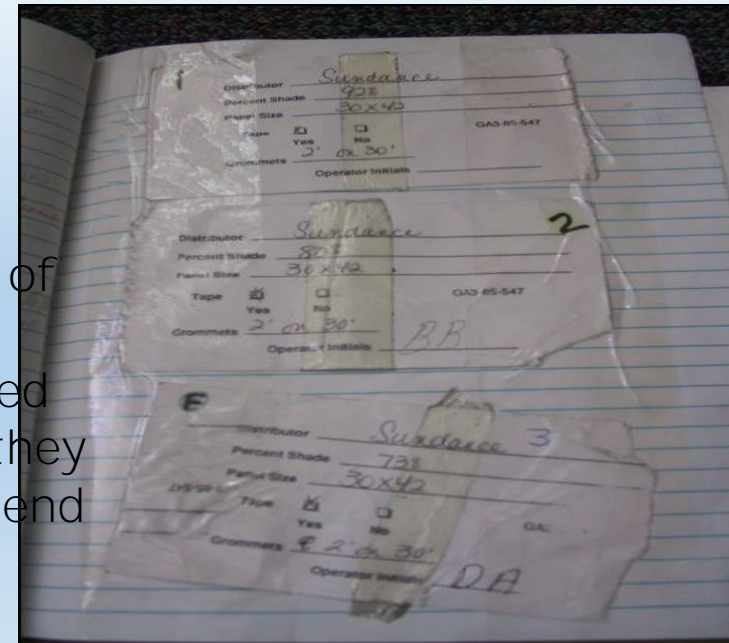
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Use it regularly and write down everything even if it seems insignificant, it could later be extremely useful.

Hand drawing showing different ages of tree branches that were sampled during an Experiment.

Glue, staple or tape any loose papers, photocopies of important items. Loose papers or other unsecured items are prohibited as they tend to fall out and can end up missing.





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Oral Presentation of the Project

- Ø Team Leader will present the project in 8 minutes.
- Ø He/She will present it on stage.
- Ø Maximum of 4 posters allowed as per NCSC guidelines.
- Ø Posters size to follow NCSC guidelines mentioned in **Activity Guide**.
- Ø 2-3 minutes for Judges to raise questions.
- Ø Improvement plan suggested by Judges to be implemented if project selected to participate in NCSC India.



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Common Pitfalls of Student Projects

- ∅ Proposes to do experiment at a level they are not capable of doing.
- ∅ Project not feasible or unrealistic.
- ∅ Need unclear
- ∅ Unaware of related works.
- ∅ Too technical or complex demanding high level of expertise.



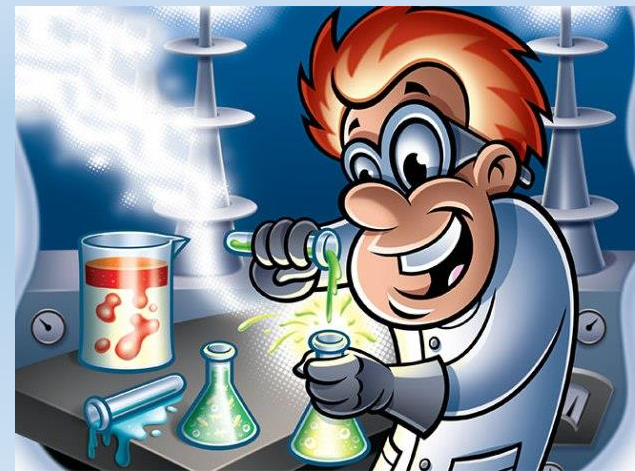
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Thumb Rule

- £ Innovative, simple and practical.
- £ Represent teamwork.
- £ Based on everyday life-situations.
- £ Involve field based data collection/ validation vs. literature review.
- £ Have definite outputs, arrived through scientific experimentation.
- £ Have follow-up plans.





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Criteria for Judging Projects

- £ Originality of idea and concept.
- £ Relevance of the project to the theme and society.
- £ Scientific understanding of the issue
- £ Assumptions/ hypothesis.
- £ Scientific Approach –Actual survey/ experimentation and Data collection.
- £ Data analysis and interpretations.
- £ Experimental validation.
- £ Findings and problem solving attempt.
- £ Report.
- £ Team work.
- £ Log book and project display in the exhibition booths during BSIC
- £ Innovation and Scope for improvement





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Important Dates

- " Internal Contest conducted by schools.
- " Research Abstract submission to SIFBAHRAIN :
15th November 2017
- " Schools to provide 2 teams per Category/Age Group
- " Bahrain Level Screening :
01 December 2017
- " Two team per Category/Age Group will be selected
participate in National level.
- " National Level Competition in India :
To be Advised



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NCSC PARTICIPATION in INDIA

1. BEFORE REGISTRATIONS, SCHOOL MUST CONFIRM WITH STUDENTS THAT THEY CAN TRAVEL TO INDIA, IF SELECTED, IT'S 5 DAYS EVENT.
2. THE EXPENSES FOR THE TRIP TO INDIA WILL NOT BE BORNE BY SCIENCE INDIA FORUM BAHRAIN
3. THE SCHOOL HAS TO MAKE ARRNGEMENTS FOR RETUEN AIR TICKET FROM BAHRAIN TO INDIA
4. FROM AIRPORT IN INDIA, ALL THE EXPENSES ARE BORNE BY GOVERNMENT OF INDIA.



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NCSC PARTICIPATION in INDIA

Number of Teams from Bahrain

Junior Category = 2

Senior Category = 2

**TEAM LEADER AND PROJECT GUIDE ONLY CAN
ATTEND THE NCSC in INDIA**

**PROJECT GUIDE SHOULD NOT BE RELATED IN
ANY WAY TO THE TEAM MEMBERS**