



Republic of the Philippines  
Department of Education  
CORDILLERA ADMINISTRATIVE REGION  
Wangal, La Trinidad, Benguet



REGIONAL MEMORANDUM

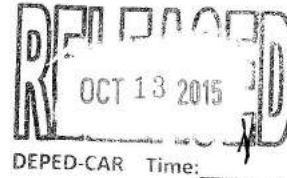
NO. 191.2015

To : Schools Division Superintendents  
All Divisions

From : *EB*  
ELLEN B. DONATO, ED. D., CESO III  
Director IV

Subject : 2015 REGIONAL SCIENCE AND MATH FESTIVAL

Date : October 12, 2015



1. The DepEd-CAR in coordination with the Math and Science Teachers Organizations will conduct the 2015 Regional Math and Science Festival on November 25-28, 2015 at **Baguio City National High School, Baguio City** with the Theme: *Environmental Protection and Conservation of the Ecosystem.*
2. This annual academic competition aims to promote Science and Technology consciousness among the youth and identify the most creative/innovative and the best Science and Technology researchers who will represent the region to the National Science and Technology Fair. The schools are encouraged to promote Science, Technology investigatory projects and Mathematics investigations that will address the *environmental protection and conservation of the ecosystem.*
3. The competed events are the following:

I. SCIENCE EVENTS

Events Contested	Category/ Level	Number of Participants/Entries
<b>Science Investigatory Project</b>		
Elementary	Individual	5 projects per division
	Team (Minimum of 2 maximum of 3 members)	5 projects per division
Secondary	Life and Categories Team and Individual	5 projects per division per category Total of 10 projects
	Physical Science Team and Individual	5 projects per division per category Total of 10 projects
<b>Science Quiz</b>		
Elementary	Grade 3 to Grade 6	1 first placer per grade level
Secondary	Grade 7 to Grade 10	1 first placer per grade level
<b>Strategic Intervention Materials</b>		
Teachers Category	Grade 3 to Grade 6	1 first placer per grade level
Teacher Category	Grade 7 to Grade 10	1 first placer per grade level
<b>Sci-Dama</b>		
Water Patrol	Grade 3 and 4	1
Power Patrol	Grade 5 and 6	1
Electro-Scidama	Grade VII	1
Sci-Not Scidama	Grade VIII	1
THI Scidama	Grade IX	1
Thermo-Scidama	Grade X	1

Telephone Numbers:

Office of the Director IV	-422-1318	Budget and Finance Division	-422-5155	Cash Section	-309-3017	Record Section	-309-3015
Fax Machine	-422-4074	Elementary Education Division	-422-7096	Physical Facilities Unit/ICT	-309-3011	Payroll Services Unit	-424-3993
Office of the Director III	-309-3013	Alternative Learning System	-422-5187	Regional Planning Unit	-309-1234	Special Services Division	-424-5167
Administrative Division	-422-1804	Secondary Education Division	-309-3014	Supply Unit	-422-2198	Commission on Audit	-422-7434

## MATHEMATICS EVENTS

Events Contested	Category/ Level	Maximum Entries/ Participants
<b>A. Damath Elementary</b>		
1. Whole Number Damath	( Grade 3 or 4)	1
2. Positive Fraction Damath	( Grades 5 or 6)	1
<b>B. Damath Secondary</b>		
1. Integer Damath	Grade 7	1
2. Signed Fraction Damath	Grade 8	1
3. Radical Math	Grade 9	1
4. Polynomial Damath	Grade 10	1
<b>C. Mathematics Quiz Elementary</b>		
1. Individual	written	1
2. Team	oral	2
<b>D. Mathematics Quiz Secondary</b>		
3. Individual	written	1
4. Team	oral	2
<b>E. Action Research in Mathematics –</b>	<b>Elementary</b>	2 projects
<b>F. Action Research in Mathematics –</b>	<b>Secondary</b>	2 projects
<b>G. Strategic Intervention Materials –</b>	<b>Elementary</b>	2 projects
<b>H. Strategic Intervention Materials-</b>	<b>Secondary</b>	2 projects
<b>I. Mathematics Investigation</b>		
1. Cluster 1- Regular Class	Individual Category	3 projects
2. Cluster 1	Team Category	3 projects (3 or 2 per team)
3. Cluster 2 – STE/CRSHS	Individual Category	3 projects
4. Cluster 2	Team Category	3 projects ( 3 or 2 per team)

**Note:**

- The use of calculator in Damath and Sci-Not Scidama is allowed.
  - There shall be different participants for the individual and team categories.
  - Submit three (3) copies each of Action Research, SIM, and Mathematics Investigation for (3) judges to the Curriculum and Learning Management Division (CLMD) on or before October 30, 2015. Projects received after the said date will not be included in the judging.
4. Points system will be applied to determine the over-all ranking of the divisions. 1<sup>st</sup> place 10 points; 2<sup>nd</sup> place 8 points; 3<sup>rd</sup> place 6 points; 4<sup>th</sup> place 5 points; 5<sup>th</sup> place 4 points; 6<sup>th</sup> place 3 points; 7<sup>th</sup> place 2 points and 8<sup>th</sup> place 1 point.
  5. The Mechanics and Guidelines of the competitions are found in enclosure No. 1. Enclosure No. 2 is the composition of the people involved and the TWG of the said activity. Enclosure 3 is the National Science and Technology Fair Guidelines.
  6. Participants shall be charged a registration fee of **Php 550.00** to cover administrative cost, honorarium of judges, extra essential services, and other incidental expenses. **Meals and snacks shall be taken care of by each division.** All expenses relative to the conduct of this activity shall be charged against local funds and other sources subject to the usual accounting and auditing rules and regulations. Participants are requested to bring their sleeping paraphernalia and personal amenities.
  7. The arrival of the Division delegates is on November 25, 2015. Coordination meeting of Management and Working Committees will be held at Baguio City National High School on November 25, 2015 at 6:00 PM.
  8. Parade starts 8:00 in the morning of November 26, 2015. Opening Program follows immediately after the parade.

Immediate and wide dissemination of this memorandum is advised.

**Guidelines and Mechanics for the Different Festival Competition.**

**A. Regional Science Investigatory Projects and Mathematics Investigation**

**1. Science Research Competition**

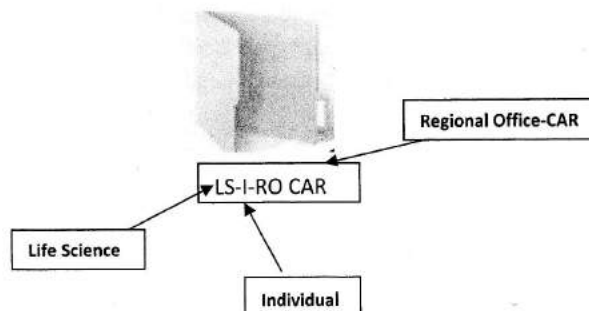
- a. Below are the classifications and categories of the science research for the **Junior High School Level**.
- b. **Classification for the Science Investigatory projects are as follows:**

<p><b>Entries shall come from the eight divisions in CAR and the Regional Science High School (CRSHS) will be treated as one Division ( for SIP only) , while the Philippine Science High School (PSHS) projects shall go directly to National Screening.</b></p>			
<p><b>Life Science Junior High Level</b></p>		<p><b>Physical Science Junior High Level</b></p>	
<p>Individual Project</p>	<p>Team Project</p>	<p>Individual Project</p>	<p>Team Project</p>
<p><b>Elementary Level</b></p>			
<p>Individual Project</p>		<p>Team Project</p>	

For more details on project category ideas please visit [www.societyforscience.org/isef/students/project\\_categories](http://www.societyforscience.org/isef/students/project_categories)

The Division level **top five** projects for each category will participate in the regional competition.

There will be four (4) Regional Level **first place** winners in the Life and Physical categories to represent the region to the National Science and Technology Fair on February 8-12, 2015 at avenue to be announced later. The **national participants** (Regional first winners) shall arrange their projects based on the following example in soft copies to be submitted to the Region **November 30, 2015** to be submitted to NSF Screening Committee:



Folder Code	Content of the Folder	Sample content of the folder for Forms
<b>LS-I-RO1</b> *life science-individual-region 1	Manuscript: <b>LS-I-RO1-School Name</b>	
	Folder containing the needed forms: <b>LS-I-RO1-Forms</b>	<b>LS-I-RO1-Form 1</b> <b>LS-I-RO1-Form 2</b>
	*name of the folder where all the soft copies of the necessary forms are found	<b>LS-I-RO1-Logbook</b>

- c. The Regional science research competition for the **elementary level** will be in two categories the **Individual and Team categories**. Projects will no longer be classified as life science or physical science. The top five projects (no ties) in the Division level will participate in the regional competition.

#### The Science Research Project

Science research projects must conform with international rules published by the *Intel International Rules for Pre-college Science Research: Guidelines for Science and Engineering Fairs 2015*. Each project is expected to have a Research Adviser and an Institutional Review Board (IRB) or a Scientific Review Committee (SRC).

For the National Level, the research project should cover a maximum of twelve (12) continuous months from January 2014 to December 2014. However, since the National STF is in the first week of February, then the complete write-up should have been submitted to the **National SRC by November 30, 2015**. The first placers in the Regional Level for every category will be screened to fulfill the national requirement for National S&T Competitions: *The participation of schools in the National STF shall be clustered into two types, Life Science and Physical Science. All Math –related projects shall join in the Physical Science Category.* Thus only four projects shall move to the National STF.

**Ethics Statement.** Scientific fraud and misconduct is not condoned at any level of research or competition. Plagiarism, use or presentation of other research's work as one's own and fabrication of data will not be tolerated. Fraudulent projects are disqualified for the competition.

## B. Guidelines of Math and Science Quiz

The Math Quiz will be composed of Easy (to be solved mentally), Average, and Difficult questions to be answered with a written solution in papers to be distributed during the event. "Clincher" or "Do or Die" questions will be given in case of ties. Science Quiz will be composed of Easy, Average (in multiple choice type) but not for the Difficult and Clincher questions.

Subject Area	Easy	Average	Difficult	Clincher/Do or Die
Math	15 seconds	30 seconds	60 seconds	To be announced by the Quiz Master
Science	10 seconds	15 seconds	30 seconds	

For Math Quiz: The Individual Category will be in written form while Team ( Elementary and Secondary) category will be done orally.

- a. The regional Math ( Team Category) and Science Quiz shall be conducted in a Quiz show format wherein all contestants are seated facing the stage while Math quiz individual category shall be in written.
- b. There shall be Easy, Average, and Difficult rounds of five (5) questions per category. Each correct answer for the Easy round is given two (2) points, Average round three (3) points, and Difficult round five (5) points. In case of tie/s, clinchers / Do or Die questions will be given until the tie is broken. Each contestant will be given answer sheets to write their answers.
- c. The Quiz Master will read the question twice. After the second reading, the Quiz Master will say "GO" and the time to start writing their answer will begin. The buzzer sounds after the given time limit and the contestants will raise their answers for recording and verification by the proctors and Board of Judges.
- d. If the proctor cannot determine the validity of the answer, the Board of Judges will decide on the matter. The decision of the board of judges is final.
- e. The duly registered coach of the contestant is only the authorized person to make a protest. **All protests should be referred to the board of judges before the Quiz Master reads the next question.** No protests will be entertained after the Quiz Master has read the next question.
- f. Any violation of the aforementioned rules shall cause the disqualification of the contestant/s concerned

### C. DAMATH/SCIDAMA RULES

1. Set the starting positions of the chips.
2. The two players alternately will take turns in moving a piece (pass is not allowed).
3. Touch move shall be observed in the games. A player who touches a chip is required to move that chip unless it is an illegal move.
4. After making a move, a player shall record his/her move in the score sheet.
5. Only one score sheet will be used by the players in a game.
6. Each player is allowed one minute to move, record the move and score.
7. A warning is given to a player by the arbiter if no move is made in one minute, and consequently, is forced to move a chip.
8. Continuo us violation of rule #7 will mean disqualification (after 3 warnings) of the player even if he is leading in the score sheet.
9. All moves should be in the forward direction except when taking a chip or the chip is "dama".
10. A chip is declared "dama" if it reaches and stops in any of the following opponent's square:  
(1,0) (3,0) (5,0) (7,0)

Similarly, if an ordinary opponent's chip reaches the following squares, it is declared as "dama".

- (0,7) (2,7) (4,7) (6,7)
11. Once a piece/chip is declared as a "dama", it could slide diagonally forward or backward in any vacant square. If a "dama" takes a chip, the score is doubled, similarly if a chip takes a "dama" the score is also doubled. If the "dama" takes a "dama", the score is quadrupled.
  12. In taking chip/chips, the following shall prevail:  
"Mayor dama"  
"Mayor dalawa"  
"Mayor tatlo", etc.
  13. "Dama" chip should be encircled in the score sheet to identify the "dama".
  14. Games duration should not exceed twenty minutes.
  15. The game also ends if:
    - The moves are repetitive
    - A player has no more chips to move
    - A player has no more chips
    - A player resigns.
- "Save by the bell"** is not applicable in the end game. Continuation of the move shall be enforced when taking a chip/s.
16. The remaining chip/chips of a player is/are added to his total score algebraically.
  17. If the remaining chip is a "dama", the value is doubled.
  18. The player with the greater total score wins the game, except in the sci-dama when the player with lesser score wins.
  19. Only players are allowed to raise questions during the game through the arbiter and questions should be settled immediately. No questions will be entertained after the game.
  20. Arbiter's decision is final.

**Technical Working Group**

<b>Function/ Event</b>	<b>Elementary</b>	<b>Secondary</b>
<b>Strategic Intervention Materials in SCIENCE (teacher category)</b>	Jane Butale	Efren Matthew de Peralta
<b>Elementary Science Investigatory Project</b>	Beatriz Domong-as and Jesusa Biggayan (Team)	Adoracion Tombali Cresencia Naoy (Secondary)
<b>Secondary Physical Science</b>	Denia Wacnag (Team)	Gloria Codamon (Individual)
<b>Secondary Life Science</b>	Wanda Lyn Pladio (Team)	Divina Mendoza ( Individual)
<b>Chief Arbiter ( Scidama)</b>	Nelson Daculog	Darwin Paas
<b>Arbiters</b>	Reynaldo Tumapang	Dexter Martinez
	Richard Simsim	Clarence Binwag
	Donald Lid-ayan	Allan Litaoen
	Leonardo Egalan	Jovy Rose Abuda
	Vincent Depayso	Amor Parista
	George Vidal	Max Dumayas
<b>FACILITATORS for MATH INVESTIGATORY PROJECTS and SIM</b>		
<b>Action Research in Mathematics</b>	Hermoso Bunnol	Lilybeth Ballutoc
<b>Strategic Intervention Material in Mathematics</b>	Romulo Basa	Jonathan Batara
<b>Mathematics Investigation ( Team and Individual)</b>	Noble Marissa Dominga (Team)	Luisita Parilla ( Individual)
<b>Chief Arbiter ( Damath)</b>	Mark Binay-an	Nestor Dalay-on
<b>Arbiters</b>	George Vidal	Robert Pocdihon
	Jomar Brub	Limson Dumogo
	Maricel Enciso	Joel Tullias
	Gilbert Cherweg	Jonathan de la Cruz
	Joemar Soriano	Eljun Arisga
<b>Overall Consolidators</b>	Warly Kindiawan	Marvin John Flores
<b>Monitoring and Evaluation</b>	Emma Gabol (HRDD)	Fely Badival

**Note**

**TWG should be guided by the guidelines for each event and facilitating of immediate returns of results for tallying.**

**National Science and Technology Fair Guidelines**

**1. Levels of Competition**  
**School/Division Level**

The following are the forms and manuscripts to be submitted in all levels of the competition:

**1. RESEARCH PLAN**

**2. FORMS for all the projects**

- Checklist for Adult Sponsor
- Student Checklist (1A)
- Research Plan (NOTE: No need to attach the Research Plan Instructions )
- Approval Form (1B)
- Regulated Research Institutional/Industrial Setting Form (1C)

**3. FORMS depending on the type of research (e.g involving humans, vertebrate animals, hazardous chemicals, etc.)**

- Qualified Scientist Form (2)
- Risk Assessment Form (3)
- Human Participants Form (4)
- Human Informed Consent Form
- Vertebrate Animal Form (5A)
- Vertebrate Animal Form (5B)
- Potentially Hazardous Biological Agents Risk Assessment Form (6A)
- Human and Vertebrae Animal Tissue Form (6B)
- Continuation Project Form (7)

**4. Abstract (Maximum of 250 words)**

The abstract should include the following:

- Purpose of the experiment
- Procedure
- Data conclusion
- The abstract may NOT include the following:
  - Acknowledgement
  - Work of procedures done by the mentor

**5. Research Paper (Include the Title Page, Abstract, Main Body, and References)**

**6. Project Evaluation Form (see Enclosure #8)**

**7. Scanned copy of the log book**

Project of proponents should have been screened by the IRB/SRC at the school level. **All school level winners must be certified by the Division SRC to join in the Division Level Fair.**

The Division Science/Mathematics Supervisor shall be a member of the BOJs who shall determine the school/division winners of the different categories and fair divisions.

Winners at the school level should be officially endorsed to the Division for the division level. Likewise, the division level winners should be officially endorsed to the region.



## Regional Level

The first place winners at the division level in both clusters shall have been properly scrutinized by identified members of the SRC for the regional level competition.

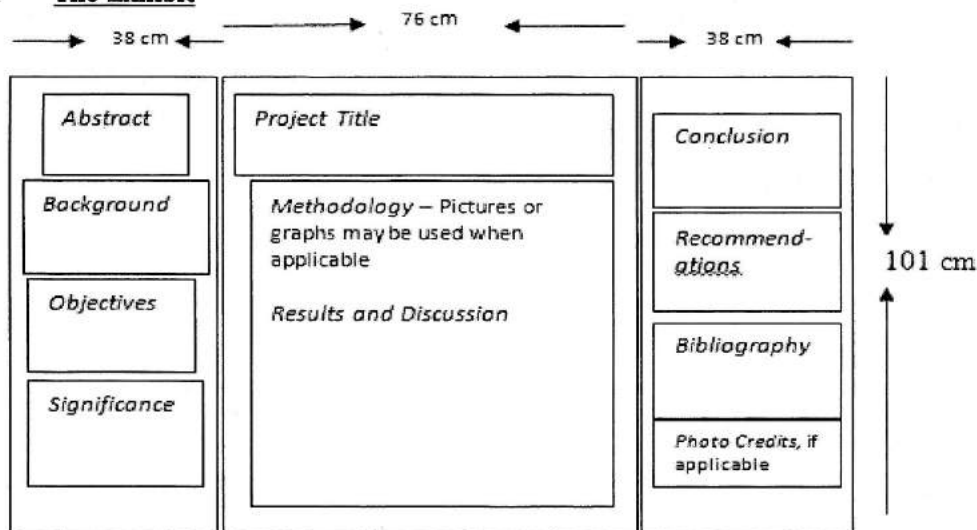
The Official List of the first **place winners at the regional level**, report on the conduct of S&T Fair, soft copies of the manuscripts and other necessary documents shall be officially endorsed by the Regional Office to DepEd Central Office through the Bureau of Secondary Education. The soft copies must be saved in the CD containing 4 folders representing the four categories. Each folder must contain the manuscripts in PDF Format and another folder containing all the required forms including the scanned copies of the research logbook.

### 2. The Research Project

Science research projects must conform with international rules published by the *Intel International Rules for Pre-college Science Research: Guidelines for Science and Engineering Fairs 2015-2016*. Each project is expected to have a Research Adviser and an Institutional Review Board (IRB) or a Scientific Review Committee (SRC). The research project should cover a maximum of twelve (12) continuous months from January 2015 to December 2015.

**Ethics Statement.** Scientific fraud and misconduct is not condoned at any level of research or competition. Plagiarism, use or presentation of other research's work as one's own and fabrication of data will not be tolerated. Fraudulent projects are disqualified for the competition.

### 3. The Exhibit



#### 3.1 Display and Safety Regulations

The project display using sets of any paper or board summarizes the research project and must focus on the proponent's work for this year's study, and if applicable, with only minimal reference to previous research. Tarpaulins will not be used in the Regional level as well as in the National STF in support of the environmental advocacy of the government in reducing the consumption of non-biodegradable or non-recyclable materials. Use illustration boards and size should follow the measurement given in this memorandum.

The safety regulations that must be adhered to should be consistent with the guidelines found on page 23 of the ISEF guidelines (<http://www.societyforscience.org/isef/rulesandguidelines>).

The following items should be seen in the project display: Abstract, Background, Objectives, Significance, Methodology, Results and Discussion, Conclusion, Recommendations, Bibliography and if applicable, Photo Credits (including illustrations and graphics)

*Note that a proponent should **not** include his/her face in the project's procedure/illustration in the display.*

### 3.2 Requirements for presentation by the Project Proponent/s to the BOJs during the exhibit are the following:

- Copy of the required forms
- Copy of the research write-up
- Project data book or student journal complete with dates of entry, number of pages, and all other details (Refer also at ISEF Student Handbook website: <http://www.societyforscience.org/document.doc?id=12>)

### **Format of Research Paper**

Investigatory papers that were reviewed by the national SRCs in the past years were found to have inadequacies in the content particularly in the areas cited below. These rules can be found in the Guidelines (<http://www.societyforscience.org/isef/rulesandguidelines>) and in the Student Handbook (<http://www.societyforscience.org/document.doc?id=12>).

- I. **Research Plan:**(This is compiled separately from the rest of the investigatory paper): All projects should include the following:
  - A. *Question or Problem being addressed*
  - B. *Goals/Expected Outcomes/Hypotheses*
  - C. *Description in detail of method or procedures (The following are important and key items that should be included when formulating ANY AND ALL research plans.)*  
*Procedures: Detail all procedures and experimental design to be used for data collection.*  
*Data Analysis: Describe the procedures you will use to analyze the data/results that answer research questions or hypotheses.*
  - D. *Bibliography: List at least five (5) major references (e.g. science journal articles, books, internet sites) from your literature review. If you plan to use vertebrate animals, one of these references must be an animal care reference.*
- II. **Project Data Book:**

A project data book is your most treasured piece of work. Accurate and detailed notes make a logical and winning project. Good notes show consistency and thoroughness to the judges and will help you when writing your research paper. Data tables are also helpful. They may be a little 'messy' but be sure the quantitative data recorded is accurate and that units are included in the data tables. Make sure you date each entry.
- III. **Research Paper:**

A research paper should be prepared and available along with the project data book and any necessary forms or relevant written materials. A research paper helps organize data as well as thoughts. A good paper includes the following sections.

  - a) **Title Page and Table of Contents:** The title page and table of contents allows the reader to follow the organization of the paper quickly.
  - b) **Introduction:** The introduction sets the scene for your report. The introduction includes the purpose, your hypothesis, problem or engineering goals, an explanation of what prompted your research, and what you hoped to achieve.
  - c) **Materials and Methods:** Describe in detail the methodology you used to collect data, make observations, design apparatus, etc. Your research paper should be detailed enough so that someone

would be able to repeat the experiment from the information in your paper. Include detailed photographs or drawings of self-designed equipment. Only include this year's work.

- d) **Results:** The results include data and analysis. This should include statistics, graphs, pages with your raw collected data, etc.
- e) **Discussion:** This is the essence of your paper. Compare your results with theoretical values, published data, commonly held beliefs, and/or expected results. Include a discussion of possible errors. How did the data vary between repeated observations of similar events? How were your results affected by uncontrolled events? What would you do differently if you repeated this project? What other experiments should be conducted?
- f) **Conclusions:** Briefly summarize your results. State your findings in relationships of one variable with the other. Support those statements with empirical data (one average compared to the other average, for example). Be specific, do not generalize. Never introduce anything in the conclusion that has not already been discussed. Also mention practical applications.
- g) **Acknowledgements:** You should always credit those who have assisted you, including individuals, businesses and educational or research institutions. However, acknowledgments listed on a project board are a violation of D & S Display rules and must be removed.
- h) **References/Bibliography:** Your reference list should include any documentation that is not your own (i.e. books, journal articles, websites, etc.). See an appropriate reference in your discipline for format or refer to the Instructions to Authors of the appropriate publication.

Three common reference styles are:

1. **APA (American Psychological Association) Style :**
  - o -<http://apastyle.apa.org/>
  - o -<http://www.calvin.edu/library/knightcite/index.php>
  - o -<http://owl.english.purdue.edu/owl/section/2/10/>
  - o This resource offers examples for the general format of APA research papers, in-text citations, endnotes/footnotes, and the reference page.

MLA (Modern Language Association) Format:

- o -<http://www.mla.org/style>
- o -<http://www.calvin.edu/library/knightcite/index.php>
- o -<http://owl.english.purdue.edu/owl/section/2/11/>
- o This resource offers examples for the general format of MLA research papers, in-text citations, endnotes/footnotes, and the Works Cited page.
- o The Chicago Manual of Style:
- o <http://www.chicagomanualofstyle.org/home.html>
- o -<http://www.calvin.edu/library/knightcite/index.php>

The Chicago Manual of Style presents two basic documentation systems. The more concise author-date system has long been used by those in the physical, natural, and social sciences. In this system, sources are briefly cited in the text, usually in parentheses, by author's last name and date of publication. The short citations are amplified in a list of references, where full bibliographic information is provided.

2. **Abstract:**

After finishing research and experimentation, an abstract should be written. This needs to be a maximum of 250 words on one page. It should include the a) purpose of the experiment, b) procedures used, c) data, and conclusions. It also may include any possible research applications. Only minimal reference to previous work may be included. The abstract must focus on work done in the current year and should not include a) acknowledgments, or b) work or procedures done by the mentor. See below for examples of award winning abstracts. See page 28 of the International Rules for the proper formatting of an Official Intel ISEF Abstract and Certification. Please Note: The official abstract form is only for those participating in ISEF. This form may not be required for other levels of competition.

## **ADDITIONAL ACTIVITIES WITHIN THE NATIONAL FAIR AS DESCRIBED BELOW.**

These activities are invitational and are extended to schools offering ROBOTICS.

### **GUIDELINES ON THE NATIONAL SCIENCE AND TECHNOLOGY FAIR 2015-2016**

Similar to the previous national level fair, the National Science and Technology Fair (STF) for 2015-2016 is an Intel ISEF-affiliated fair. As such, the requirements for affiliated fairs should be met and followed as stated in the ISEF guidelines mentioned on page 2 of this Memorandum.

#### **1. The Science Fair**

The Bureau of Secondary Education of the Department of Education (BSE-DepED) shall conduct the **National STF 2015-2016** on **8-12 February 2016**.

The STF is a nationwide science research competition that aims to promote Science and Technology consciousness among the youth. It also aims to identify the most creative and the best Science student researchers who will represent the country in the Intel International Science and Engineering Fair 2016 (Intel ISEF 2016) and other international/regional science and technology fairs.

In addition to the usual research competition, there shall also be other activities within the fair as described below.

##### **1.1. Pinoy Robot Games**

Pinoy Robot Game is an annual national robotics competition affiliated to the National Science and Technology Fair organized by the Department of Education. It aims to promote the use of technology in learning and aids in the development and application of both basic and integrated science process skills as applied in the real life settings. The participants are given opportunities to apply and further develop various skills such as information, technology, innovation and critical thinking skills as applied to the designing, creating and programming of their self-made robots. The event supports DepEd in achieving its K-12 target to produce holistically develop Filipino learners with 21st century skills.

The competition is divided into different categories such as

- **Sumobot**  
This category enables the participants to design a robot that will locate and knock its opponent right out of the ring while detecting the outside circle should an escape move be necessary.
- **Line Tracingbot**  
This category aims to create robot that be able to detect particular line and keep following it.
- **Fire Fighting Robot ( Autonomous )**  
This a robotics game where a robot must autonomously navigate through a mock home with multiple rooms and with a candle randomly placed in one of the rooms, simulating a house on fire. The robot needs to find the candle and put it out, paving the way for a house-hold robot which would find and extinguish small home fires before they can engulf the house. The main challenge of this contest is to build an autonomous computer-controlled robot that can find its way through an arena that represents a model house, find a lit candle that represents a fire in the house, and extinguish the fire in the shortest time. This task simulates the real-world operation of an autonomous robot performing a fire protection

function in a real house. The goal of the contest is to advance robot technology and knowledge while using robotics as an educational tool. There will be a category for Junior Players (kids aged 9 to 11) and Senior Players (kids aged 12 and up)

- **Innovative Robot ( Remote Control / Autonomous )**

The innovative robot category is one that allows teams to innovate, design and build their robots according to the current year THEME. A sample is Saving the Rivers where teams are to create innovative robot designs to be able to clean, clear, or even recycle the waste that is causing the pollution in our rivers today. There are no strict rules for this category but mainly the judging criteria for the robots. A special panel of judges expert in the topic will be selected by the WRG committee especially for this category. Some judging criteria include design, efficiency, technical competency, aesthetics, practicality, etc. This game category is open Junior and Senior participants.

- **Humanoid Challenge (Penguin Wars)**

This is a robotics game where participants control an articulated two-legged humanoid robot to score goals in opponent's side. The robots can be programmed or remote controlled. The robot's task is to put colored balls in the opponent's side either by kicking, picking, or throwing the ball. Understanding of humanoid's mechanics and strategy is important and cooperation with teammates is required. This game category is open for Junior and Senior participants.

For more information about this event you may contact Ms. Pinky Legaspi / Mr. Melvin Matulac at 722-0549 or visit [www.pinovrobotgames.org](http://www.pinovrobotgames.org) & [www.dstc.com.ph](http://www.dstc.com.ph) or email at [nstfsecretariat@gmail.com](mailto:nstfsecretariat@gmail.com) for details.

1.2. **Innovation Expo**

Innovation Expo is an annual event designed to promote innovation among the learners and industry partners. It aims to crowd source and display science and technology innovations and solutions to everyday challenges. The exhibit will be open to all sectors, public and private, subject to approval of their proposed exhibit/demo by NSTF management and payment of a registration fee. Sale of products and services will not be allowed.

For more information about this event you may email Ms. Sylvia Garde at [lbdatar@lit-ed.org](mailto:lbdatar@lit-ed.org) and [nstfsecretariat@gmail.com](mailto:nstfsecretariat@gmail.com) for details.

1.3. **NSTF Educators Academy**

NSTF Educators Academy is an event for the official educator participants of NSTF. This gives the participants opportunity for learning and development through the attendance in various shop talks designed to promote innovation, creativity and excellence in science and research education. The topics are selected to assist educators in managing science programs in their respective areas such as schools, division, districts and regions. The event also gives research advisers and experts opportunity to share their best practices that benefits the adviser and supervisors in assisting student science research initiatives. Pre-registration to this activity is required.