



Republic of the Philippines  
**DEPARTMENT OF EDUCATION**  
**REGION IV-A CALABARZON**  
Gate 2, Karangalan Village, Cainta Rizal



**REGIONAL MEMORANDUM**

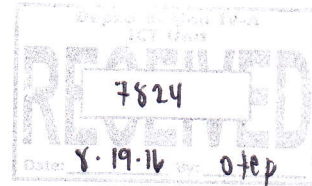
No. 270 s, 2016

**TO :** ALL SCHOOLS DIVISION SUPERINTENDENTS

**FROM :** DIOSDADO M. SAN ANTONIO  
*Director IV*

**SUBJECT :** 2016 REGIONAL SCIENCE AND TECHNOLOGY FAIR AND CONGRESS

**DATE :** August 2, 2016



The Department of Education Region IV-A CALABARZON thru the Curriculum and Learning Management Division (CLMD) announces the 2016 Regional Science and Technology Fair & Congress on October 18-21, 2016 at P. Guevarra Memorial National High School Sta. Cruz, Laguna with the theme "Transforming Learning, Empowering Learners through the RSTFC".

The fair and congress aim to:

- a. Promote science and technology consciousness among the youth;
- b. Identify the most creative and the best science researchers who will represent the country in various international science and engineering fairs and to ;
- c. Strengthen skills of teachers in science research and pedagogy .

The RSTFC Life and Applied Sciences - First Placers (Rank 1) in the Individual and Team categories from each SDO shall submit their final written entries on or before September 30, 2016 at the Curriculum Learning Management Division (CLMD) Regional Office c/o Mr. Job S. Zape Jr., EPS II- Science with the summary of comments signed by the Division Scientific Review Committee together with the endorsement of the superintendent.

All Science Education Program Supervisors are requested to download the softcopies of the International Rules for Pre -College Science Research: Guidelines for Science and Engineering Fair 2016-2017 at <https://member.societyforscience.org/document.doc?id=746> for their guidance. Guides and other mechanics of the RSTFC are attached in this memo.

Travel expenses, food, supplies, materials and other related expenses of the participants shall be charged against local/school funds subject to the usual accounting/auditing rules and regulations.

Immediate and wide dissemination of this Memorandum is desired.



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## 2016 RSTFC IMPLEMENTING GUIDES & RULES

### A. THE 2016 SCIENCE FAIR AND CONGRESS

The Curriculum and Learning Management Division (CLMD) of Dep Ed Region IVA shall conduct the 2016 RSTFC on October 18-21, 2016 to be hosted by SDO - Laguna. The RSTFC as a curricular program intervention of the region aims to promote science and technology consciousness among the youth, identify the most creative and best science researches in the region and strengthen the skills and content of teachers in research and pedagogy.

### B. COMPETITION

All contest categories are open to public schools of the region. All 1<sup>st</sup> placers or Rank 1 in each contest category in the SDO are qualified to compete and join in the 2016 RSTFC.

### C. PRIZES AND AWARDS

#### c.1 For Learners

- 1<sup>st</sup> Placers : Gold medal + Certificate of Recognition
- 2<sup>nd</sup> Placers : Silver medal + Certificate of Recognition
- 3<sup>rd</sup> Placers : Bronze medal + Certificate of Recognition

#### c.2 For Teachers

- 1<sup>st</sup> Placers : Plaque + Certificate of Recognition
- 2<sup>nd</sup> Placers : Certificate of Recognition
- 3<sup>rd</sup> Placers : Certificate of Recognition

#### c.3 For Coaches /Principal of the winning schools

- 1<sup>st</sup> Placers : Certificate of Recognition
- 2<sup>nd</sup> Placers : Certificate of Recognition
- 3<sup>rd</sup> Placers : Certificate of Recognition

C.4 Best Performing Divisions

- Top Performing Division (Rank 1) : 15' Plaque of Recognition
- Top Performing Division (Rank 2) : Certificate
- Top Performing Division (Rank 3) : Certificate
- Top Performing Division (Rank 4) : Certificate
- Top Performing Division (Rank 5) : Certificate

D. HOST DIVISION

The 2016 RSTFC will be hosted by DepED Laguna at P. Guevarra Memorial National High School and Sta. Cruz Elementary School to accommodate the various elementary and secondary contests respectively.

The host division and host school shall ;

- Provide good venues for efficient implementation of the contests
- Provide tarpaulin for the venue in the opening and closing programs
- Provide sleeping quarters for all the delegates
- Assist the regional staff for some clerical work
- Create working committees to ensure efficient implementation of the program
- Assist the participants in the entire duration of the congress and fair
- Prepare the program and supply other needs for the opening and closing activities

E. OFFICIAL PARTICIPANTS

The official participant to the RSTFC from each SDO shall only be the Rank 1 winners/First Placer from public schools in each of the different contests duly endorsed by the schools division superintendent. Only one (1) adult in charge or coach shall accompany the participant / contestant in the venue per event per day. The official list of participants and coaches shall be approved by the Chief of the Curriculum and Instruction Division of the SDO.

<i>Contest</i>	<i>Category/Grade Level</i>	<i>Maximum No. of Participant</i>	<i>Total</i>
Investigatory Project	Teachers Category/STEM	1	1
	Learners Category /Secondary	3 (LS & PS -Team)	6
		1 (LS & PS - Ind)	2
Learners Category/Elementary	2(individual or team) ( LS or PS )	2	

<i>Contests</i>	<i>Category/Grade Level</i>	<i>Maximum No. of Participant</i>	<i>Total</i>
Robotics Project	Learners Category /Secondary	Type 1:Sumobot Type 2: Line Tracing Type 3: Innovative Type 4: Dancing	1 1 1 1
	Teachers Category/STEM	1	1
Quiz Bee	Learners Category /Elementary	1 (K to 3 ) 1 (G4 – 6 )	3 3
	Learners Category /Secondary	1 ( G7- G10)	4
	Teachers Category /Elementary	1 ( any grade level)	1
	Teachers Category /Secondary	1 per grade level	4
Science Videos	Teachers Category/ Elem	1 from Grade 3	1
Infographics	Teachers Category /Elementary	1 from Grade 4	1
Scie –folio	Teachers Category /Elementary	1	1
	Teachers Category /Secondary	1	1
Innovative IM's	Teachers Category /Secondary	1	1
Science Mind Map	Learners Category/ Elementary	1	1

## F. CONTESTS AND COMPETITIONS

### F.1 Learners Category: Elementary

- Quiz Bee for the Elementary Pupils (Grades 1 to 3 & G 4 - G6)
- Investigatory Projects – Life/Applied :Team or Individual
- Science Mind Map

### Teachers Category: Elementary

- Science Videos
- Infographics
- Scie -Folio
- Quiz bee for the Elementary Teachers



## H. MECHANICS OF THE DIFFERENT CONTESTS

### H.1 Science Investigatory Projects

**H.1. a** The conduct of the school /division level Science & Technology Fair and Congress shall be done in conformity with Dep Ed Order No. 9, s. 2015. The school and division level STFC shall follow the mechanics and guides in implementing the contests for elementary and secondary levels.

**H.1. b.** The first place winners at the division level in both clusters shall have been properly scrutinized by identified members of the SRC at the division level. No project will be accepted in the RSTFC if it is not being supervised by a qualified scientist or supervising adult and whose research activities, testing and investigations are not conducted in any research institution, standard laboratory or industry.

**H.1. c.** The official list of first place winners at the division level, report on the conduct of S & T fair and printed copies of manuscripts shall be officially endorsed by the Schools Division Superintendent to the Regional Office through the CLMD.

**H.1. d** The participation of the schools in the DSTFC and RSTFC shall be clustered into three types; Life Science, Physical Science and Robotics.

**\* Secondary**

<i>Life Science (LS)</i>		<i>Physical Science (PS)</i>		<i>Robotics</i>	
Individual	Team	Individual	Team	Individual or Team	Sumobot Line Tracing Innovative Dancing

**\* Elementary**

<i>Life Science (LS) or Applied Science (AS)</i>
Team composed of two members only or Individual

**H.1. e** The research project should cover a maximum of twelve months or 1 year or if it is a continuing project, a research progression project form ( Form 7) shall be accomplished.

**H.1. f** Scientific fraud and misconduct is not condoned at any level of competition or research. Plagiarism, use or presentation of other research works as ones own and fabrication of data will not be tolerated.

**H.1. g** The project display shall use sets of any paper board that summarizes the research project and shall focus on the proponents work for the current year. Use of tarpaulin for the display is discouraged. Safety regulations in the entire duration of the event must adhere to the guidelines of the ISEF, copy of the required forms, copy of research write up,

project data book and 6 slide powerpoint presentation showing the salient features of the project must be prepared and presented by the project proponent to the Board of judges during the interview or congress.

**H.1. h** The format and flow of activities of the regional congress and fair shall follow the national and international science fair .

**H.1. i** Projects submitted after the set deadline shall not be honored and considered as an entry in the RSTFC.

**H.1. j** The project display must use sets of any board paper that presents the Abstract, Objectives, Significance , Methodology, Results and Discussion and must follow the required size of 152 cm X 101 cm (Width x Length )

**H.1. k** The decision of the judges is final and irrevocable. No queries will be entertained during or after the awarding ceremony.

**H.1. l** The format shall follow the following parts ;

H.1.1.1 . Research Plan

H.1.1.2 Project Data Book ( photocopied )

H.1.1.3 Research Paper

- \* Title page
- \* Table of Contents
- \* Introduction
- \* Materials & Methods
- \* Results & Discussions
- \* Conclusions & Recommendations
- \* Bibliography

**H.1.n** . All are directed to download the soft copies of the international rules at <https://member.societyforscience.org/document.do?id=746> for specific instructions and detailed procedure.



## H.2 ROBOTICS

RSTFC Robotics Competition is an annual regional robotics competition that 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 real setting. 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 design, creation and programming of their self-made robots.

**H.2. a** The competition is divided into four (4) types .

**H.2. b** Necessary materials and equipment in presenting the robot entry like electrical sockets, wiring, extension wires, computers, laptops, audio / video, lightings and other related equipment shall be the sole responsibility of the participants. Robotics Form B shall be accomplished if the party or contestant desire to bring such materials.

**H.2. c** All entries and display must be ready the day before the contest proper.

**Type 1: Sumobot.** This type enables the participants to design a robot that will locate and knock its opponent out of the ring while detecting the outside circle should an escape move be necessary .

The objective of the Sumobot is for you to push the other robot out of the sumo ring. A match is fought between two teams, each team having 2 members .Only one team member may approach the ring. In accordance with the game rules , each team competes on a Sumo ring with a robot that they have constructed themselves. The match starts at the judges command and continuous until contestants earns two points. The judges determines the winner of the match.

Length of Match : 3 minutes, 1 minute per round

Robot Specifications

1. A robot must fit within a square tube of the appropriate dimensions for the given class.
2. The total mass of a robot at the start of a match must be under the designated weight.

Height	Width	Length	Weight
unlimited	15 cm	15 cm	400g/500 g
unlimited	20cm	20 cm	100g

3. A robot may expand in size after a match begins but must not physically separate into pieces and must remain a single centralized robot. Robots violating these restrictions shall lose the match. Screws, nuts and other robot parts with a total mass of less than 5 grams falling off from a robots body shall not cause the loss of match.



4. Robots must be autonomous. Any control mechanisms can be employed as long as all components are contained within the robot and the mechanism does not interact with an external control system (human, machine or otherwise)
5. Autonomous class robots must not start operating for a minimum of five seconds after initiation by the user.
6. The robot must have a name or number for registration purposes. Display this name or number on your robot to allow spectators and officials to identify your robot.
7. Robot restrictions: Any microcontrollers are allowed. The robot must not have a device that interferes with the sensor operation of its opponent. Parts that could break or damage the ring, opponent's robot or its operator are not allowed. Normal pushes and bangs are not allowed. Normal pushes and bangs are not considered intent to damage. Devices that can store liquid, powder, gas or other substances for throwing at the opponent and any flaming devices are not allowed. Sticky substances to improve traction are not allowed. Robots should not secure itself on the ring surface by using suction cups, diaphragms, sticky treads, glue, vacuum pumps, magnets or other devices. Tires and other components of the robot in contact with the ring must not be able to pick up and hold a standard 3' x5' index card for more than two seconds. All edges including but not limited to the front scoop must not be sharp enough to scratch or damage the ring, other robots or players. In general edges with a radius of greater than .005 as would be obtained with an unsharpened .010 ' thick metal strip should be ok. Judges or competition officials may require edges that they deem too sharp to be covered with a piece of tape.

## HOW TO CARRY SUMO MATCHES

1. One match shall consist of 3 rounds within a total time of 3 minutes unless extended by the judges. NO CONTACT RULE is suspended. If the robot falls outside the ring with no contact, the robot loses the point.
2. A contestant receives a point when they win in a round. The contestant who wins two rounds within the time limit shall win the match. If the time limit is reached before any contestant gets two points, the contestant who has the highest points wins the game.
3. When the match is not won by either team within the time limit, no match shall be extended and both are declared as loser of the match.
4. One point shall be given to the winner when the judges' decision was called for or lots were employed.

## START, STOP, RESUME AND END A MATCH

**Start** ; Upon the judges instructions, the two contestants bow to each other in the outer ring, approach the ring and place a robot within their half of the ring on or behind the line. When the judge announces the start of the round, the teams start their robots and after a five second pause the robots may start operating. During these five seconds, players must clear out of the ring area. The robot that does not start will be considered with false start. The judges give another round to start the game.

**Stop, Resume** : The match stops and resumes when a judge announces so.

**End.** The match ends when the chief judge announces so. The two teams retrieve the robots from the ring area and bow.

## TIME OF MATCH

1. Each round has a maximum of 65 seconds including the 5 second delay. When no point is scored, a draw is called. Exception is when the robot is about to fall when the 65<sup>th</sup> second is reached. The referee can extend to a maximum of 5 seconds just to win the point.
2. A single time out of 30 seconds can be requested between rounds. Only one time out per player. A player who extends beyond the 30 seconds timeout can lose the round depending on the referees call.
3. Referee must continue each succeeding round without delay. Any player who causes a delay in starting the next round when no time out is called will lose the round depending on the referee call.
4. The total time of the match is extended when extension calls for it.
5. There will be 3 rounds per match. For the finals and semi finals, there are 5 rounds per match. The match can be extended to a maximum of 2 rounds only.

## TIME OUT

During a time out, repairs to the robot is made but batteries **CAN NOT** be changed. Major repairs and battery are done after the match.

## POINTS

1. One point shall be given when;
  - When no contact is made between the robots and one robot falls outside the ring, Point is counted. The robot that remained in the ring wins the point.
  - When a part of the robot falls off or separates from the body while in the ring, the other robot wins the point.

- When a robot flips on its side or flips over, when a robot stops moving or spins around in the same location for 5 seconds, the other robot wins.
- When all rounds of the match are completed and NO WINNER is found, the robot with the lighter weight gets the winning point.
- When a robot moves before the 5 second delay requirement, the other robot gets the point. Referee advises the player to press the start button in a delayed manner so it will move after the 5 seconds “start call”
- When the player touches any part of the playing field or any robot in the match directly or indirectly during a round, the point is awarded to the other robot.

## **DRAW**

- When 65 seconds has lapsed into the round.
- When the referee can not decide on which robot fell first.
- When during a contact, both robots are in a deadlock position and there is no progress in the position after 10 seconds a draw is called.

## **FALSE START**

- When at the start of the round, the player accidentally was not able to properly put the robot on, A False Start is called – NO points are called, the round is repeated. Referees observe false start carefully

## **PENALTIES**

- Sportsmanly conduct is expected from contestants. Any misconduct foul language or intentional action to harm the contestants or robot shall be dealt with by the table officials with the recommendation of the referee. Penalties can range from losing a score, a round, a match or being banned from joining in the match.

## **DECLARING AN OBJECTION**

Only players can state an objection to the call of the referee. Coaches can not interfere in any time during the match.

How to declare objections:

- The player or contestant calls the attention of the referee and state “ Sir/Madam, I am objecting in the call.
- A table official /judge is called to the field in front of the two players and the referee.
- The objection is stated to the referee and judge witnessed by the other player.
- The judge makes a final decision within 60 seconds.

## PLAYING FIELD

- The interior is defined as the playing surface surrounded by and including the border line. Anywhere outside this area is called exterior.
- The ring shall be circular in shape and of the appropriate dimensions for the given size class.
- Lines or Starting lines consist of two painted parallel brown lines centered in the ring with appropriate width and spacing for the given class. The separation distance between the lines is measured to their outside edges.
- The border line is marked as white circular ring of a width appropriate for the given class on the outer edge of the playing surface. The ring area extends to the outside edge of this circular line. There should be a space appropriate for the given class outside the outer edge of the ring.

Category	Ring diameter	Border Width	Line Width	Line Length	Line Separation
3 kg	154 cm	5 cm	2 cm	20 cm	20 cm

**Type 2. Line Tracingbot.** This type aims to create a robot that can detect a particular line and keep following it. Contestants are in a team composed of a leader with two members.

The objective of Line Tracingbot is for your autonomous robot to complete the course in the shortest period of time while accurately tracking the line from START to FINISH. A game is played by one robot per contestant having 2 members. Only one team member may approach the playing field. Playing field consists of different obstacles with corresponding points. Your aim is to surpass the obstacle while moving on the line. The robot who approach the finish line in the shortest period of time will win the game.

### Robot Specifications:

- There is no restriction on the type of the robot.
- Pre Built: All robots must be pre- built before the competition.
- The base of the of the robot should fit in the 24 cm x 24 cm cell without touching the adjacent obstacles on the side or the top. Your robot can be larger at the top as long as it is higher than 4 inches or 10 cm so as not to hit any obstacles . Expanding robots are not allowed.

**TYPE 3 : Innovative Robot ( Theme based)** This type allows the contestant to innovate, design and build a robot according to the theme. This category is open to Junior High School students and Senior High School students.

#### Robot Specifications

- No restriction on the robot
- Robot should be pre- built on the day of the contest
- Size of the robot is 30 cm x 30 cm
- No restrictions on the number and type of sensors
- Fuel based power source is not allowed. Only batteries
- It can be fully autonomous or remote controlled.
- Cables are not allowed
- Presentation time is 5- 8 minutes.
- Presentation field is 3.96 m x 2.44 m
- Starting the game : After a minute introduction of the contestant, a start whistle signal from the referee shall be made. The robot can start showing or presenting the concept or theme based activity.
- Robots can not be touched during the presentation
- Robots will be judge according to the criteria set for innovative robots
- Ending the game : The game ends after the stop whistle from the referee

**TYPE 4 : Dancing Robot** . This type allows the participant to control an articulated two legged humanoid robot designed and dressed to dance for 240 seconds based on the songs being played. The robots can be programmed or remote controlled.

Robot : Open to all types of humanoid robots. Individual or team with a maximum of 3 members. No restrictions in height, weight and in size.

Robot/s shall dance with the music arranged and remain with the designated area of 1 m x 1 m stage.

Dressing up the robot/s with costumes is/are recommended.

There are two rounds. The top 9 scorers in the elimination round will qualify in the final round.

Robot/s shall dance to a remix of the following set of songs.

#### **SET A : Elimination Round**

Waka Waka by Shakira

Bon Bon by Pitbull

We No Speak Americano by Yolanda be Cool

Fireball by Pitbull Feat

Bailando by Enrique Iglesias

Travesuras by Nicky Jam

**SET B : Final Round**

Zumba by Don Omar

On the Floor by Jennifer Lopez

Follow the Leader by Wisin & Yandel

Don't Stop the Party by Pitbull feat

Lets Get Loud by Jennifer Lopez

**H.2. b** Necessary materials and equipment in presenting the robot like electrical sockets, wiring, extension wires, computers, audio / video, lightings and other related equipment shall be brought by the participants. Robotics Form B shall be accomplished if the party or contestant desire to bring such materials.

**H.2. c** All entries and display must be ready the day before the contest proper.

**H.3. QUIZ BEE FOR LEARNERS AND TEACHERS**

**H.3.1** . The Science Quiz Bee is an oral and written individual contest from Grade 1 to Grade 10 that covers all the strands of the K to 12 Curriculum – Science.

**H.3.2** The quiz bee will use English for Grades 1, 2, 4 to 10 and Filipino for Grade 3 as a medium to deliver the contest.

**H.3.3** The competition is divided into six groups ;

Group 1

Winners of each grade level in the SDO (Grade 1/Grade 2/Grade 3)

- Grade 1 to Grade 3

Group 2

Winners of each grade level in the SDO (Grade 4 /Grade 5 /Grade 6)

- Grade 4 to Grade 6

Group 3

- Grade 7

Group 4

- Grade 8

Group 5

- Grade 9

Group 6

- Grade 10

**H.3.4** For Groups 1 and 2, only contestants with score of 22 up are qualified to proceed to the Orals.

**H.3.5** Contestants must be in their school uniform during the contest. Only contestants are allowed in the contest areas/rooms.

**H.3.6** Contestants who are late 5 minutes before the start time of the contest may mean disqualification from joining the contest.

**H.3.7** Teachers, coaches and parents shall be seated and be accommodated in one room away from the contest venue.

**H.3.8** The competition is divided into two parts: Written and Oral Competition. The Written test is composed of 30 items good for 25 minutes and the Oral test has four rounds composed of 10 items for each quarter (Matter to Earth and Space) . Each item is good for 15 seconds.

**H.3.9** All questions will be given 2 points each. After every 10 questions, the score of each contestant will be summed up and the scorecard will be flashed on the screen.

**H.3.10** Questions in the written and oral test are in multiple choice or open ended type of test.

**H.3.11** In case of a tie, a clincher round composed of 5 questions will be given with two points each for correct answer. The scores will be added to the partial score of the competing contestant to determine the winner.

**H.3.12** All answers must be spelled correctly to be considered correct. Use of calculators is not allowed.

**H.3.13** Answers that require units must be complete. No units of measurement will not be considered as correct answer.

### **CONTEST FLOW**

- Before the start of the competition proper, the quiz master will perform a roll call of all confirmed contestants.
- Each contestant must be ready with his /her whiteboard and marker before the start of the contest.
- Before a question is read, the contestants must raise their pens or markers.



- The quiz master will state the question number and read the question twice. The question will also be projected on screen. Timer starts after the quizmaster will say GO.
- Questions will be read twice by the quizmaster. At the same time, the questions will be flashed on the screen. A buzzer will be rung at the end of the timer and the quiz master will say “time is up”.
- Each contestant should raise their answer boards and keep them raised until the quiz master allows them to lower it. Failure to do so will also invalidate the contestants answer for that question.
- The quiz master will announce the correct answer for the question , Assigned proctors will then check the answer boards to determine if the answer is correct. The proctor will read the number of the contestant who got the correct answer.

#### IN CASE OF PROTESTS

- Only the participant is allowed to make a protest. A protest may be signified by raising a red flag. A red flag will be provided to each contestant.
- All protest shall be referred immediately to the Board of Judges immediately after the last item in each round or after item no. 10 question.
- Any protest given after the reading of the first question in the next round will not be entertained.
- The decision of the board of judges is final and irrevocable. The board shall be in complete control of the contest.

## H.4 SCIENCE VIDEOS IN MTB- MLE

**H.4.1** A science video is a digital video or contextualized educational video material for a topic which uses various formats. e.g. , it can be a video of a teacher speaking to a camera with a mixture of photographs and text about the topic , a production or any format the contestant wish to use to just to present fully and clearly the content chosen for that video.

**H.4.2** The video should run for a maximum of 5-6 minutes that may focus on any of the contents of Grade 3 Science.

**H.4.3** Videos should be original and not have been submitted to any video contest in the country.

**H.4.4** Aside from the title screen, it must have a short introduction telling the competencies, key ideas and the quarter where the video belongs.

**H.4.5** The video shall be in mp4 format and shall have at least 720p resolution, 25 frame rate. (1280 x 720)

**H.4.6** Music and text used in the video shall be acknowledged at the end of the video.

**H.4.7** All information presented in the video must be cited giving credit to the original source.

**H. 4.8** Each video must have a lead producer which is the teacher contestant.

**H.4.9** Content must be aligned to the K to 12 curriculum in Science Grade 3.

## **H.5 SCIENCE INFOGRAPHICS**

**H.5.1** A science infographic is a visual representation of a content/subject that combines many types of data, processes, photographs, icons, symbols and illustrations into easy to understand designs and lay out used to boost learning and understanding of such content / subject. It is a data rich visualization of content used to educate, inform and enhance the human visual systems ability to see pattern and trends of a complex idea or subject.

**H.5.2** Contestant is expected to be at the venue 5 minutes before the contest proper with his pen and paper for the preparation of his / her draft.

**H.5.3** Proctor will pick a piece of paper that contains the topic or subject on which the contestants will prepare an infographic.

**H.5.4** The contestant upon the announcement of the proctor will be given 10 minutes to draw on a piece of bond paper his plan and lay out for the infographics. After the given time, proctor will collect the draft of the infographics from the contestants.

**H.5.5** Proctor will assign each contestant a computer or laptop to improve the draft. The design and development of the infographics using a computer will last for 30 minutes. All infographics must have a one paragraph description/ explanation written on a separate sheet.

**H.5.6** Contestants are not allowed to use available software or any online infographic maker nor download the same for use during the contest.

## **H.6 SCIENCE MINDMAPS**

**H.6.1** A mind map is a form of graphic organizer or diagram that connects information around a central idea. It shows relationships among pieces of the whole created around a single concept drawn as an image in the center of the map to which associated representations of ideas such as images, words and symbols are added. Usually, major ideas are connected directly to the central concept and other related or specific ideas branch out from those.

**H.6.2** Contestant is expected to be at the venue five minutes before the contest proper with his pen, crayola or coloring pen and paper for the preparation of his / her contest piece.

**H.6.3** Proctor will check the attendance of the contestants and pick a piece of paper that contains the topic or subject on which the contestant will prepare a mind map.

**H.6.4** The contestant upon hearing from the proctor the topic/subject matter, as the contest focus, will be given 40 minutes to design, develop and create the mind map using the official contest material. ( RO official paper for mind map)

**H.6.5** Contestants are not allowed to use a computer or laptop to prepare his or her entry .

## H.6 SCIE FOLIO

**H.6.1** A scie folio is a contest category where a contestant will prepare a one page document that contains essential concepts, processes and steps of a certain approach or strategy in teaching science and how it is used in teaching the skills and content. It shall give the reader a full understanding of the strategy and its underlying principles together with a simple procedure or activity that further show how it is implemented. Anchored on the 2C-2I-1R, the scie folio presents current trends, visually communicates an idea, shows design and innovation in teaching and is a well-executed piece of written work.

**H.6.2** Contestant is expected to be at the venue 5 minutes before the contest proper with his pen and paper for the preparation of his / her draft.

**H.6.3** Proctor will pick a piece of paper that contains the pedagogy or strategy on which the contestant will focus his/her scie folio.

**H.6.4** The contestant upon the announcement of the strategy by the proctor will be given 50 minutes using a laptop or computer in the contest venue to prepare or develop his or her sci folio. After the given time, outputs of each contestant shall be printed and submitted to the board of judges.

**H.6.5** All folios must fit on an 8.5 x 11 sheet of paper.

**H.6.6** Contestants are not allowed to use available or previously made sci folio nor use the internet to improve, search or develop completely his or her contest piece.

## I. ABSTRACT OF THE DIFFERENT CONTESTS

### 1. INNOVATIVE INSTRUCTIONAL MATERIALS

Contestants	Elementary Teachers
Requirements	Display board, one page paper description of the IIM
Format	No format
Criteria	<ul style="list-style-type: none"> <li>• Evidence of project plan - 15%</li> <li>• Uniqueness &amp; Skills Involved - 30 %</li> <li>• Adaptability, Usability and Efficiency - 30 %</li> <li>• Interview/ Positive results - 15 %</li> </ul>

### 2. INVESTIGATORY PROJECTS

Contestants	Elementary , Secondary & SHS -STEM Learners Teachers
Requirements	Research Plan, Project Data Book , Research Paper, Abstract & Forms
Format	ISEF Rules
Criteria	Evidence of Research Plan /Literature Search : 20 % Science & Engineering Goals /Logical Investigations : 20% Originality /Use of Appropriate Techniques : 15 % Adherence to Research Ethics : 10 % Positive Outcomes/Results : 25 % Interview : 10 %

### 3. ROBOTICS

Contestants	Secondary & SHS -STEM Learners
Requirements	Robots as per requirement, Research Paper, Individual
Format	WRO / PRO
Criteria	Criteria indicated in the guidelines

#### 4. QUIZ BEE

Contestants	Elementary & Secondary Learners Teachers
Requirements	Oral and Written Tests, Individual
Format	WRO / PRG
Criteria	Criteria indicated in the guidelines

#### 5. SCIENCE INFOGRAPHICS

Contestants	Elementary Teachers
Requirements	Pen and paper
Format	Open format
Criteria	<ul style="list-style-type: none"> <li>• Proper Attribution of Information - 30%</li> <li>• Typography and Creative Details - 20 %</li> <li>• Design Trends/Uniqueness - 20 %</li> <li>• Readability, Data Accuracy and Value – 30 %</li> </ul>

#### 6. SCIENCE VIDEOS USING MTB – MLE

Contestants	Elementary Teachers
Requirements	Digital video in CD ( 2 copies)
Format	Mp4 format, 720 resolution, 25 frame rate running time: 5-6 mins
Criteria	<ul style="list-style-type: none"> <li>• Clarity, completeness and consistency of ideas - 25%</li> <li>• Logical presentation of concepts and ideas – 25 %</li> <li>• Use of appropriate photos, materials &amp; music – 30 %</li> <li>• Audience Impact - Learners Score – 20 %</li> </ul>

#### 7. SCIENCE MIND MAPS

Contestants	Elementary Learners
Requirements	crayons, pen, pencil or coloring pens
Format	No format
Criteria	<ul style="list-style-type: none"> <li>• Data Density - 45%</li> <li>• Focus and Readability - 20 %</li> <li>• Presentation &amp; Simplicity - 20 %</li> <li>• Visuals - 15 %</li> </ul>

## 8. INNOVATIVE INSTRUCTIONAL MATERIALS

Contestants	Elementary Teachers
Requirements	Display board, one page paper description of the IIM
Format	No format
Criteria	<ul style="list-style-type: none"> <li>• Evidence of project plan - 15%</li> <li>• Uniqueness &amp; Skills Involved - 30 %</li> <li>• Adaptability, Usability and efficiency - 30 %</li> <li>• Interview/ Positive results - 15 %</li> </ul>

## 9. SCIE FOLIO

Contestants	ELEMENTARY & SECONDARY Teachers
Requirements	
Format	None, focus on the essentials of the strategy /approach, methods and steps on how it is used in the classroom, application plus graphics
Criteria	<ul style="list-style-type: none"> <li>• Evidence of project plan - 15%</li> <li>• Uniqueness &amp; Skills Involved - 30 %</li> <li>• Adaptability, Usability and efficiency - 30 %</li> <li>• Interview/ Positive results - 15 %</li> </ul>

## J. Process Flow for the Lead Person/Proctor

- J.1 Be at the venue/ room designated for the Proctors /lead person 30 minutes before the contest proper.
- J.2 Receive the RSTFC envelope(white envelope) from the secretariat. The RSTFC Secretariat will distribute the envelope in the secretariat room.
- J.3 Proceed to the venue assigned to you for the day.
- J.4 Introduce yourself as the Lead Person/Proctor and the other authorities in the room.
- J.5 In the venue, check the attendance of the contestants, coaches, materials of the contestants, the contest venues, the judges and the scorers.
- J.6 Present and read the rules and mechanics of the contest.
- J.7 Provide safety precautionary measures and provisions in the conduct of the contest.
- J.8 After the contest, submit the attendance sheet to the secretariat