

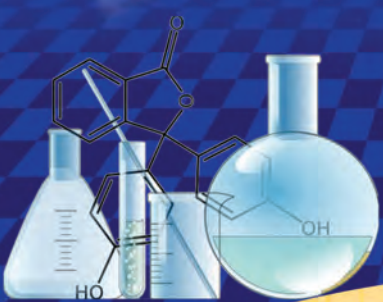
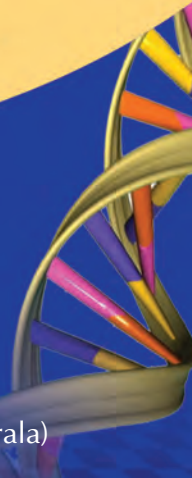
6th Annual Science Fair

SPARK

Innovation Awards 2016-17

Inter-State Science Fair

(Telangana, Andhra Pradesh, Karnataka, Tamilnadu & Kerala)



Dr. K.V. RAO SCIENTIFIC SOCIETY

I. Philosophy behind the SPARK Innovation Awards:

KVRSS aims at promoting the pursuit of science among school children. With a view of fostering spirit of scientific enquiry and promoting innovation among school children, KVRSS holds an annual science fair wherein the **SPARK Innovation Awards** are given for entries displaying use of scientific concepts for solutions to an existing problem through some novel concept / method / process / device.

The latest developments in science and technology are in the process of making 'disruptive' changes in virtually every sphere of life. Path-breaking advances are being made in different fields like Semi Conductor chip design and manufacturing, Computers design and programming, Robotics, Medicine, Bio-technology, Bio-engineering, Telecommunications, Material sciences etc. The major disruptions that are now happening come from the cross-disciplinary convergence of these technologies which, when combined with the astounding advances in Artificial Intelligence has the potential of making enormous changes in practically every sphere of human activity. Virtually every repetitive or 'formula based' activity, no matter how complicated, will get mechanized in the very near future and as time goes by, machines with 'deep learning' capabilities will increasingly take over and perform complex activities currently performed by humans.

The future work force will perhaps be largely science-based knowledge-workers. More certainly, the future belongs to innovators and scientific-minded individuals capable of understanding the on-going, continuous advances in science and harnessing various technologies in creating new products / processes / business models etc.

KVRSS is concerned that the current school curriculum - which is oriented largely towards getting children into engineering and medical colleges - is becoming regimented and syllabus-bound - with emphasis on preparing and reproducing answers to a set of expected questions! There is little or no lab-work, project work or any activity that requires the student to think about the concepts he has studied, its practical applications, work with his hands in a lab carrying out experiments, making some simple devices etc.

The SPARK Innovation Award is KVRSS's small contribution towards fostering the culture of scientific enquiry by creating a multi-state competition which will make children think out of the box, do some individual research, understand the harnessing of the scientific principles they have learnt, think of practical applications and work with their own hands to create a new product. How-so-ever imperfect the end-product may be, what matters is the understanding of the scientific principles, the creativity involved and the novelty of the product /idea/concept.

There are numerous competitions around the world aimed at precisely this-recognizing and fostering the qualities of **innovation among school children**-which we believe is the correct stage at which original scientific thinking and spirit of enquiry must be encouraged and talented children recognized and nurtured.

The SPARK contest aims to achieve this through an inter-school competition wherein the **SPARK Innovation Awards** would be given to the children who come up with the most original exhibits/concepts in the fields of Biology, Food Sciences, Physics, Chemistry, Computer Science and Mathematics including Earth and Environment Sciences, Electricity and Electronics,

Robotics, Energy etc. The competition is open for students from the states of Telangana, Andhra Pradesh, Karnataka, Tamil Nadu and Kerala.

II. What we are looking for:

It may be noted that the proposals should focus on Innovative Ideas of students and not mere compilation of information downloaded from the internet. We have been conducting the SPARK programme for the past four years. However, perhaps due to poor communications from our side, we have been unable to get worthy contributions for our competitions.

As already mentioned, such competitions are taking place all over the world and this time, we have tried to pick up some of the procedures and instructions from some successful competitions and put together this paper to serve as a guide to both the students as well as their teachers.

Further, we have also compiled a list of winners of some of the competitions held in other countries so that applicants can get an idea of what we are seeking and the kind of criteria that would be used while judging the entries. Below are some recent award-winning science projects from some of the brightest and youngest minds out there.

1. A flashlight that runs on heat of the human hand

Sixteen-year-old Ann Makosinski from British Columbia, Canada created an innovative flashlight that harvests heat emitted from the human hand. She called her project "The Hollow Flashlight," and won the 2013 Google Science Fair Award for it. To view more about her project, see the Google Science Fair website.

2. A sandbag for protection during hurricanes and floods

Peyton Robertson, an 11-year-old from Fort Lauderdale, Florida, designed an innovative sandbag to protect against hurricanes and floods. He won the 2013 Discovery Education 3M Young Scientist Challenge.

3. A new approach to combat the flu

Eric Chen, a 17-year-old from San Diego, California, introduced a new method to fight the flu. His research has won awards at the Google, Siemens and Intel science fairs.

4. Bioplastics from banana peels

Sixteen-year-old Elif Bilgin from Istanbul, Turkey worked for two years on developing this project. She focused on creating bioplastics from organic waste material. In 2013, Bilgin won the Scientific American Science in Action award.

5. A safety system for overheated cars

Three students from John Ross Elementary in Edmond, Oklahoma created the "Hot Car Safety System." The project focused on finding a solution to deaths and accidents caused by overheated vehicles. It received a 2014 ExploraVision award.

6. A specialized glove designed for hand tremors

Four high school friends from Columbus Academy in Gahanna, Ohio were interested in finding a non-

invasive solution for hand tremors. They came up with "TremorX," a special glove that can reduce the amplitude of tremors by 65%. Their project was one of the winning teams at the 2014 Conrad Spirit of Innovation Challenge.

7. A device for the hearing impaired to experience music

Jonah Kohn, 14, came up with "Good Vibrations," a device that allows deaf people to hear sounds and music through vibrations. His project won the top prize in the 2012 Google Science Fair.

8. The eyeglasses of the future

Four students from Marlboro Middle School in Marlboro, New Jersey created interactive, auto-adjusting eyewear to improve vision. The project won a 2014 Exploravision award.

III. SPARK - 2016-17

The competition is open to school students in the age group of 13 to 18 as on 31st December 2016 from the states of Telangana, Andhra Pradesh, Karnataka, Tamilnadu & Kerala only. All the students must have permission from the school or parent or legal guardian to enter the Competition. The decision regarding the students' eligibility to participate wrests with KVRSS.

A. Project Requirements:

- ❖ **A brief write up about the Entry in English (in addition you may send a video of maximum 2 minute duration or a Slide show of maximum 10 slides).**
- ❖ Particulars of the Team (to be filled as in the given format)
- ❖ **Proposal:**
A brief description of the problem being investigated, the methodology and the expected result
- ❖ **Research or Why:**
A write up of the research undertaken for choosing the problem.
- ❖ **Materials & Method or How:**
Detailed description of the experiment/s or design.
- ❖ **Results or What was found:**
Experimental data of the experiments or testing, and an analysis of the data.
- ❖ **Discussion:**
Interpretation of results
- ❖ **Conclusion/Report & Future Work :**
Details of the outcome of the result and an explanation of the results obtained.
- ❖ **Bibliography, References and Acknowledgments**

B. Awards:

- a. Grand Prize - Rs. 10,000/-
- b. Best Project - Social Impact - Rs. 7,500/-
- c. Best Project - Application Oriented - Rs. 5000/-
- d. Best Project - Scientific Concepts used - Rs. 5000/-
- e. Sponsored Awards - will be announced later

The prizes would be given in two following categories:

- i. Category A: Class 7th to 9th
- ii. Category B: Class 10th to 12th

C. Judging Criteria:

1. **How inspiring is the idea?**
2. **Capacity to make impact in some way.**
3. **Interest & Creativity.**
4. **Knowledge and use of scientific concepts.**
5. **Interpretation of results.**
6. **Presentation and communication skills.**

Projects that are just informational, models, kit building or downloads from internet will not be considered for final presentations. A project may be a part of a larger study performed by professional scientists, but the project presented by the student must be only their own portion of the complete study.

Projects with scientific fraud and misconduct which includes plagiarism, forgery, use or presentation of others work as one's own and fabrication of data, will fail to qualify for competition.

D. Eligibility:

1. Each School may send multiple projects, however, a student can be part of only one project.
2. A student must be:
 - a. be in class 7th-12th or equivalent;
 - b. in the age group of 13 to 18 years.
3. Abstracts and additional material must be in English.
4. A team may have a maximum of three members and from the same school. The team leader should be properly mentioned.

E. Registration

All students, individuals and teams, must register as per the format given before the project submission deadline of **15th December, 2016 → Extended to 24th December, 2016**.

Each Team must have a Team Leader identified.

Registering of a project does not guarantee an entry into the Competition.

Complete project and all additional materials must be submitted on or before **31st December, 2016 → Extended to 7th January, 2017**. A confirmation mail will be sent on receiving the complete project.

Students have to send the information as per the following format to register.

Name of the student : _____

Date of birth: _____

Address : _____

Mobile number : _____

email address : _____

Official school name: _____

Address: _____

Telephone number: _____

Mobile number : _____

Principal's name: _____

Mentor's name: _____

Address: _____

Mobile number: _____

email address: _____

Number of Students in the Team: _____

Title of the Project : _____

* All students in a team must submit the above details.

Tips to choose the right projects:

- Talk to the faculty at a nearby college, university or research institute.
- Search online, ask teachers, study science books, etc.
- Contact judges from earlier science competitions.
- Contact people who write science articles.

Students may also refer to the following websites for ideas:

Google Science Fair

Intel International Science and Engineering Fair

Siemen's Foundation

Regeneron Science Talent Search

Date of Final Presentation: 28th January 2017

Venue:

Siddhartha Nagar Welfare Association, Indoor Stadium and Cultural Centre,
8-3-169/163, Siddhartha Nagar, Near Kalyan Nagar Junction,
Vengalarao Nagar, Ameerpet, Hyderabad.



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