

STELLENBOSCH REGION ESKOM EXPO FOR YOUNG SCIENTISTS

ANNUAL REPORT 2014

Executive summary

The 15th year of Expo for Young Scientists in the Stellenbosch region has in general been a successful year. The 208 grade 7 to 12 participants who were selected by their schools exhibited 154 interesting and exciting research projects. Sixty six dedicated judges once again spend time and energy to interview and assess the young scientists' work.

The smooth running of the regional event was ensured by a team of committed people who played their part and pulled their full weight; heart-filled thanks go to every Expo committee member! A special word of thanks goes to Dr van Louw and SUNCEP at Stellenbosch University under which auspices Expo takes place every year.

After the West Coast succeeded from the bigger Stellenbosch region in 2013, it was time for the Eden Karoo to go solo in 2014. In order to replace departed schools and learners from these two regions, it was necessary to devise practical and innovative strategies. Plans made at the Bosberaad were implemented by Provincial Coordinator Mada du Toit and me in order start building new capacity in the Stellenbosch region. Although we knew that it would take time to build new relationships and to convince schools to do projects the Expo way, we were still disappointed in the fact that none of the identified, targeted schools took part in the end. Hope however prevails and we are convinced that it is only a matter of time before we see the change we are looking for!

The selected group did us proud by being rewarded with one highly commended, nine bronze, eleven silver and four gold medals, including three category winner awards, five special prizes and the Derick Gray Memorial award!

It was also a highlight that Stellenbosch University could finally be convinced to make bursaries available for senior category winners at ISF. As both Expo and the University are committed to research, excellence and empowering the youth of South Africa, this is sure to be a win-win collaboration.

Sponsorship

Sponsors and donors who share our passion for science and the youth make it possible to run our exposition at a high standard. Our sincere thanks go to the Het Jan Marais National Fund, Toyota SA Motors, Eskom and Stellenbosch University; your contribution to this worthy cause is valued!

Workshops

Two workshops were conducted. On 19 February 5 teachers and 160 learners were addressed at Worcester Gymnasium. On 17 April a workshop was held at Lochnerhof Primary School in Strand; 4 teachers and 45 learners attended.

A workshop for inexperienced judges or judges who felt they needed upskilling was held on 21 August 2014 just before the regional expo competition. About 10 people attended the workshop and their feedback afterwards was that they thoroughly enjoyed it!

All the projects chosen for ISF were visited individually to give participants guidance and tips for upgrading and polishing of their research projects. Like in the past this refining process made a big difference in the quality of the final product being displayed at ISF.

Regional Expo

The regional competition was held in Stellenbosch on 21 and 22 August 2014, in Paul Roos Gymnasium's activity hall.

One hundred and fifty four projects were exhibited at the exposition, of which 100 were individual and 54 group projects. 208 learners participated, 120 females and 88 males. High school females were the majority with 111 individuals, whereas 77 were high school boys. Of the primary school learners 11 were male and 9 female. The 17 schools that were represented included 13 quintile 4 and 5 schools, 4 quintile 1, 2 and 3 schools and 3 private schools.

All of the projects were judged at least three times to come up with a well thought through, discussed final mark. Forty six participants received bronze medals, 34 silver medals and 35 gold medals. A total of 36 special awards were made.

The Eskom Expo award for the best female winning project went to Priyanka Govender. She did an experiment to simulate a process that could follow carbon capturing as required by all factories. The Eskom Expo award to the best development project went to Veda October and Samira Scheepers who investigated factors that influence the growth of finger nails. The Eskom best alternative Eskom expo energy winning project was that of Michelle Gelderblom and Jeanne Hislop. They used urea in a chemical cooling system aiming to develop a fridge that does not require electricity. The Eskom best energy efficiency project came from Janré Hanekom and Nicolaas Smit who developed a mathematical model that simulated various factors influencing fuel consumption.

South African International Science Fair

Twenty five research projects by 31 participants out of 13 schools were selected as regional representatives for ISF held from 7 to 10 October 2014 at the Birchwood centre in Boksburg. It was important to the committee to select projects from as many schools as possible in order to create "role models".

The results were as follow:

Name & Surname	Category	Project	School	Grade	Award
Emlyn Allwright	Agriculture	The Power of powder: Non-destructive poultry hygiene using antimicrobial powder	Bloemhof Girls' High School	Grade 12	Gold medal Senior category winner – Agricultural Sciences Winner of Derick Gray Memorial Award – to present own research to Nobel prize winners in Stockholm, Sweden Winner of Stellenbosch University bursary
Jana Lötz	Innovation and Technology	Piëzo feet are green feet	Bloemhof Girls' High School	Grade 9	Gold medal Junior category winner – Innovation and Technology Best project by a girl – Dell laptop sponsored by Eskom Expo for Young Scientists Chairman award for best project by a girl - Kindle Paperwhite e-readers sponsored by Circuit City HJ van der Bijl Award (ITC Services) special prize
Thomas Butler	Agriculture	Is die kool die sous werd?	Paul Roos Gymnasium	Grade 9	Gold medal Junior category winner - Agricultural Sciences Selected for interview for possible international participation

Adriaan Lambrechts and Dewald de Koker	Social Sciences	Learning abilities of different boys and girls	Lochnerhof Primary School	Grade 7	Gold medal
Larissa Tredoux	Computer Sciences	Morse Code encoder and decoder	Rhenish Girls' High School	Grade 10	Silver medal HJ van der Bijl Award (South African Radio league) special prize
Renske van Wyk	Agricultural Sciences	Flaterwater	Curro Langebaan	Grade 11	Silver medal
Reinier Kapp and Morné Dempers	Physics	Intermolecular forces and their influence	Bellville High School	Grade 11	Silver medal
Marco Kirsten	Agricultural Sciences	Aquaponic system vs natural soil	Bredasdorp High School	Grade 11	Silver medal
Janré Hanekom and Nico Smit	Energy efficiency	Haste makes waste?	Bellville High School	Grade 11	Silver medal
Grant Metcalf	Alternative and renewable energy	Low cost solar powered evaporative cooler	Hermanus High School	Grade 10	Silver medal
Priyanka Govender	Environmental Sciences	Carbon control: Recycling CO ₂ emissions	Rhenish Girls' High School	Grade 10	Silver medal
Shirley van der Merwe	Physics	Kleur en hoe ons dit sien	Bellville High School	Grade 10	Silver medal
Warren Fleming	Innovation and Technology	How sail design affects performance	Bridge House	Grade 9	Silver medal
Philip Ellis	Environmental Management	Does EMF from cell phone towers threaten the honey bee?	Paul Roos Gymnasium	Grade 9	Silver medal
John-Henry van der Westhuizen	Food Sciences and Technology	The impact of infographics on everyday dietary decisions	Paul Roos Gymnasium	Grade 9	Silver medal
Petrea Butler	Alternative and renewable energy	Sirkuleer met die son en spaar	Stellenbosch High School	Grade 11	Bronze medal
Aletia Basson	Environmental Management	The effect of plastic on wetlands	Montana High School	Grade 10	Bronze medal
Sian Ryan Fell	Animal and Veterinary Sciences	The colour phenomenon of <i>Patiriella exigua</i> sea stars	Rhenish Girls' High School	Grade 10	Bronze medal
Michelle Gelderblom and Jeanne Hislop	Alternative and renewable energy	Chemical Fridge	Rhenish Girls' High School	Grade 10	Bronze medal
Magdal de Beer and Chrismarí de Wet	Environmental Management	Van Pes tot Proteïen	Bloemhof Girls' High School	Grade 9	Bronze medal
Leon Schreiber	Alternative and renewable energy	Copper oxide thermo electric generator	Bredasdorp High School	Grade 9	Bronze medal
Marijké Marais	Animal and Veterinary Sciences	Genetic differences between cattle breeds	Bloemhof Girls' High School	Grade 9	Bronze medal
Janco Greyling	Health Care and Sport Sciences	"Project T" – Hoe vinnig 'n tennisbal sy bons verloor	Curro Durbanville	Grade 8	Bronze medal
Samira Scheepers and Veda October	Health Care and Sport Sciences	Nails as slow as snails	William Lloyd Primary School	Grade 7	Bronze medal
Anthonie Small-Smith	Alternative and renewable energy	From waste to energy	Paul Roos Gymnasium	Grade 9	Highly commended certificate

Marketing

CDs with all the relevant regional info, project guide books and DVDs were sent out to invite schools to participate at the regional competition. Information and project guide books were also distributed during training at workshops.

Local newspapers in the various districts of the Stellenbosch region published dates of the regional expo and encouraged learners and teachers to become involved. After the regional and national competitions photos of participants were placed in the same district newspapers again.

Three big banners with details were put up in Stellenbosch to invite visitors to attend the regional competition.

One of our learners, Warren Fleming, had the privilege to be part of a television recording for Expo by Hectic 9 studios in Cape Town. He thoroughly enjoyed the experience!

Blue Eskom Expo banners were put up at Paul Roos Gymnasium while the regional competition was held.

International participation

Emlyn Allwright was chosen at ISF 2014 to present her research to the Nobel Prize recipients in Stockholm, Sweden.

General

I sincerely want to thank Parthy, Priscilla, Rancia and Jonathan - your leadership, dedication, passion and enthusiasm have been inspiring during 2014. It remains a privilege to be part of the Expo family!



Erika Hoffman

Regional science fair director, Stellenbosch

10 December 2014



Stellenbosch region's representatives on the airport and on their way to ISF



The Department of Biosciences and the Modelling and Digital Sciences labs were highlights during an educational excursion to the CSIR in Pretoria.



The group who received nine bronze, eleven silver and four gold medals, including three category winner awards, five special prizes and one international award!



After receiving the prestigious Derick Grey Memorial award at ISF, Emlyn Allwright will present her research to Nobel prize winners in Stockholm, Sweden.