



Three South African students named Finalists in Google Science Fair 2016 Competition

Sixteen year old South African, Kiara Nirghin, has won the Community Impact Award and just been named the Regional Winner for Africa and Middle East in the Google Science Fair 2016 competition.

The Community Impact Awards honour five projects that make a difference students community by addressing an environmental, health or resource challenge. Each winner is awarded \$1,000 in an educational scholarship and a 12 month mentorship programme from a Google Science Fair partner organization. Sixteen regional winners will then compete for the final event in the Google Science fair in Mountain View, California in September 2016.

Kiara's project was focussed on solving the effects of drought. South Africa is currently experiencing one of the worst droughts in 45 years. With major lack of rainfall, many agricultural crop growths are under major strain. In recent years, Superabsorbent Polymers (SAPs) have been developed, which act as a hydrogel in retaining and absorbing large amounts of water. These SAPs can retain 76% of soil moisture; however these hydrogels are costly and are not biodegradable. Kiara created a low-cost, biodegradable and chemical free superabsorbent polymer utilizing polysaccharide naturally found in orange peels and organically cross-linked with sunlight. Oil in avocado peels were then used in emulsion polymerization of the solution. Sounds like a mouthful, but leaves us beaming with pride that a 16 year old know these concepts and can interrogate a scientific inquiry to showcase her solution!

In South Africa, Science and Maths are deemed critical subjects, so we have to ask, what helped spur Kiara's interest in Science. This is what she had to say, "I absolutely love the captivating subjects of chemistry and physics in school. I have always had a great love for chemistry since I was young. I vividly



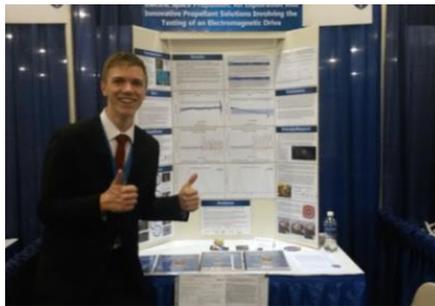
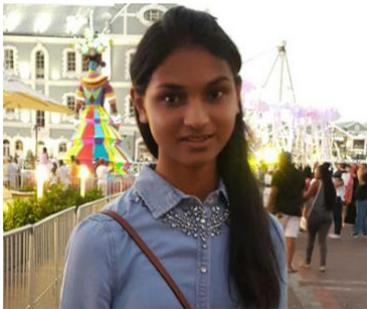
remember at the age of 7 experimenting with vinegar and baking soda solutions in plastic cups. My natural curiosity and questioning nature has sparked my everlasting love of science. I also house a great interest in food science and baking. I believe that food and chemistry are undoubtedly linked in the intertwined science web. I love molecular gastronomy and the application of scientific principles in food creation."

Take a look at Kiara's project here <https://goo.gl/1KyW3r>

Eighteen year old, Paul Stansell is was also regional finalist with his project titled, **Electric Space Propulsion: An Exploration into Propellant Solutions Involving the Testing of an Electromagnetic Drive**. His project investigated two novel solutions to the problem of high propellant-mass fractions required for space travel. The initial research tested an Electromagnetic Drive, a form of electric space propulsion that purportedly pushes on quantum vacuum fluctuations and so does not require a traditional propellant. After it was found that the force (if any) produced by this device was too small to solve the problem, a Vacuum Arc Thruster (VAT) was constructed. This device uses any solid conductive propellant as fuel, which could be found in Low Earth Orbit or on asteroids – eliminating the need for carrying traditional propellant. Paul’s project is available here <https://goo.gl/tUaaMy>

Jandre Van Der Merwe (15), was the third SA Finalist with his **Edumat** project. This project is an educational aid for caregivers looking after 1-5 year old toddlers and was designed to help caregivers to develop and prepare children for school. The [EduMat](#) targets caregivers in rural areas with no access to pre-schools.

SchoolNet wishes to congratulate all three finalists on their success and wishes a heartfelt good luck to Kiara in the global event which will be held in September in Mountain View, California. We are very proud of you!



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