

Girl power takes to space

 By [Nicci Botha](#)

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Africa's first privately owned satellite will be launched into the atmosphere later on in 2016, with a payload designed and built by South African schoolgirls.



The launch will be the culmination of an ambitious programme created by MEDO (Meta Economic Development Organisation) to get girls interested in STEM (science, technology, engineering and mathematics) careers, a sector which is both currently struggling to find suitable entrants and that is very much male-dominated.

Too cool for school

Science and maths are losing traction as subjects in high school, yet it is becoming increasingly evident that technological fields are where employment opportunities will flourish in the future.

"Many corporates MEDO works with experience a lack of skilled STEM employees. By 2020, 80% of all future jobs will be STEM related, with almost double the pay of non-STEM related careers. So what we are trying to do is to give young women the best chance out there," says MEDO CEO, Judi Sandrock.

The bigger picture

"South Africa does have a challenge because only 7.6% of learners passed maths with more than 60%. This means that unless you are in those very low percentiles you won't get into university or technikon."

"We can't blame the government, the education system, what we need to do is find a solution. What the programme and the satellite is all about is to inspire so that we have more people doing well in science and maths at school not only to become engineers, but teachers and a whole array of other professions," Sandrock explains.

The space programme

So what more exciting way to introduce young women to STEM careers than to design and build a payload for a real live satellite?



The Women in STEM programme, which was developed in partnership with Morehead State University in Kentucky, USA, a highly recognised research and development centre in nano-satellite technologies, comprises three phases.

SpacePrep on the move

The first phase kicked off in June 2015. Known as SpacePrep, MEDO took to the road in a mobile lab, which hosted workshops for high school girls, teaching them the basics of electro-mechanics by building a mini robot or Jiggybot from scratch.

So far 120 young women have attended SpacePrep, with the hopes that as its popularity grows, 600 learners will be reached annually.

Bootcamp for boffins

From there, 14 of the best and brightest young women were selected to attend SpaceTrek, a week-long bootcamp held from 5-11 January in Worcester. Here they were given an intensive introduction in telecommunications, satellite construction, calibration and data analysis, led by an all-woman team of experts in their respective fields from South Africa and the States.

What the girls say

Before joining the bootcamp, some of the participants had this to say:

Ayesha Salie, Grade 12, Pelican Park High School: "I'm excited to learn more about satellites and space as it isn't something which I am (completely) familiar with yet."

Nikiwe Jela, Grade 12, Dr Nelson Mandela High School, on why she thinks more women don't follow careers in stem: "In the past, women were only supposed to do housework where men were given the honour to study and work."

Amanda Litshetu, Grade 12, Siphamandla Secondary School: "I want to be an engineer because I love working with machines, electricity and everything that is technological."

Sesam Mngqengqiswa, Grade 11, Phillipi High School: "I want to be part of SpaceTrek because I think it will help me explore science in a way that would benefit my future."



Chirps from the edge of the atmosphere

The highlight of the SpaceTrek experience for the girls was undoubtedly building and monitoring their own weather data collection satellites via weather balloons known as CricketSats.

The name derives from the response of crickets to the weather. In hot weather, their chirps are closer together, while in cold weather they are more drawn out and languid. So using the frequency with which their CricketSat was emitting chirps, the girls could track the temperature their satellites were travelling through as high as 30kms up from their ground stations.

...And we have lift off

MEDOsat1 will be launched from the Mojave Desert in the United States in the second quarter of 2016. Prior to that, learners will be involved in the brainstorming as to the payload for the satellite, as well as a post-launch programme where they can communicate with the satellite and experiment with communication and data gathering while it is in orbit.

"We have plans of launching one satellite a year until 2019, so after this satellite has fulfilled its function and has burnt out, we are not going to disappear into the sideline with this issue," Sandrock concludes.

MEDO delivers economic development programmes by acting as a conduit between big businesses with entrepreneurs and start-ups - which are at least 50% black-owned.

ABOUT NICCI BOTHA

Nicci Botha has been wordsmithing for more than 20 years, covering just about every subject under the sun and then some. She's strung together words on sustainable development, maritime matters, mining, marketing, medical, lifestyle... and that elixir of life - chocolate. Nicci has worked for local and international media houses including Primedia, Caxton, Lloyd's and Reuters. Her new passion is digital media.

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