

Science for sustainable development

Matthew Del Grande

National Science Week is upon us again and this year's theme is 'Science for Sustainable Development and Improved Quality of Life.' But what is sustainable development and why should we care about it? Sustainable development is development that meets the needs and aspirations of the present without compromising the ability of future generations to meet their own needs. This means that sustainable development looks at how the way we live today affects the way we will live tomorrow.



Mlungisi Secondary School teams up with Science Spaza for National Science Week 2016

There are many areas where sustainable development can be applied such as nutrition, food production and water. South Africa has a high number of people who are living with Type 2 diabetes, an illness caused by poor diet. By building awareness and giving people the tools they need to harvest rainwater and grow healthy food we can help to stop this disease and live healthier, happier lives. As you know our country faces many issues. 'Quick fixes' are often chosen because they are easy, but they don't last long. We need to think about the future when fixing our country's problems because it means nothing if we can't promise future generations a South Africa worth living in.

Hip Hop Science Spaza Rhythm and Rhyme for a Sustainable future!

Nonhle Ostrich

Hip Hop Science Spaza teamed up with experts and learners from Mlungisi Science Spaza club to create and record Hip Hop songs for National Science Week 2016 (8 -13 August 2016). As you know, this year's theme is Science for Sustainable Development and Improved Quality of Life.

Mic check one two, one two! The stage was set and it was show time!

After weeks of preparation, the learners at the Mlungisi Secondary School in Taylor's Halt, Pietermaritzburg, put on their creative hats and turned into Hip Hop artists who performed their own Hip Hop songs about water, nutrition and food security. The excitement from the supporting crowd echoed for miles as each group got on stage and performed their song. We got to jive, sing along and share the message about the importance of sustainable living, all whilst having fun.

The songs produced from this initiative will be available on the Science Spaza Sound Cloud and partnering community radio stations across the country will be airing these songs throughout National Science Week - so listen out!



Learners from Mlungisi Secondary School performing at the Hip Hop Science Spaza event in Taylor's Halt



Water! Food! Nutrition! Energy!

These are things that we can't go without so it is important to be conscious about how we use our resources and find ways of sustaining them! We also need to take care of our bodies as they are our most valuable resource! Find out more in this National Science Week 2016 edition of *Spaza Space*.

Get hold of the four **activity worksheets** (in the middle of your *Spaza Space*). Cut them out and do them with your friends – remember to send us pics and feedback on your experiences. There are prizes for the best responses!

Right here on page 2 you can catch up with Agent Zee as she meets another great **role model in sustainable development**.

You can also **win a great prize** for your science club! Check out the ChemStart science kit on page 3, which you can win by answering some questions about your Science Club. We really value your opinions and feedback – they help us to improve Science Spaza for you and for others.

Check out Page 1 for a rundown on this year's National Science Week theme, **Science for sustainable development and improved quality of life**, and see why this is so important for us as South Africans. Head over to pages 4 and 5 to find out more about the **National Science Week event** organised by Science Spaza! The Mlungisi Secondary School Science Spaza club had a great time and put on an amazing show! You can also hear what local experts have to say about sustainable development in South Africa. To find out what's happening this National Science Week, go to pages 6 & 7 for **details of events** near you!

Check out what our **Science Spaza clubs** have been up to and to see just how many Science Spaza clubs there are, check out page 8. You can also catch up with Xolani Nkunzi (winner of Hip Hop Science Spaza 2015) who was in Durban to record his track (available soon!). Remember, you too can enter the **Hip Hop Science Spaza 2016 competition** – find out more at www.sciencespaza.org.

Finally, keep in touch during National Science Week on Facebook and Twitter and keep glued to your **community radio station** (see the full list on page 5 or listen out on Soundcloud) to hear great songs and interviews on sustainable development.

Remember Science Spaza – **Knowledge is ncah!**

The Science Spaza Team

ScienceSpaza

@ScienceSpaza

soundcloud.com/sciencespaza



Meet Nozipho Gumbi, winner of FameLab South Africa!



I caught up with Nozipho who is currently in Germany as an exchange student studying how to use nanotechnology to treat water. It's crystal clear that this young scientist is going places.

Agent Zee: Could you tell me a bit about where you're from?

Nozipho: I'm originally from KwaZulu-Natal, from a township called Esikhawini. I was born there and spent all my childhood in that area until I moved to Johannesburg to start university.

Agent Zee: Where are you currently studying and what do you do there?

Nozipho: I am currently studying towards a Doctorate degree through UNISA. I am working under a research group called the Nanotechnology and Water Sustainability Research Unit, NanoWS for short. My research project aims to improve our drinking water by developing a filter made of carbon nanotubes. They have such small openings that they can remove even the smallest micro-pollutants from water.



Agent Zee: Wow, it sounds like your work really interests you! When did you first realise you wanted to work in the field of science?

Nozipho: Like many people, I realised my passion for science when I was in high school. I used to excel in subjects like chemistry and physical science so I decided to continue on this career path.

Agent Zee: What made you decide to enter FameLab and how have you found the experience?

Nozipho: I entered FameLab because I was excited by the idea of our work in labs reaching a wider audience. I also knew that this would be an opportunity for me to become a better speaker and to make scientific talks both fun and educational – very different from the long PowerPoint slide presentations we usually give in our scientific meetings or conferences. I gained expert advice on public speaking from trainers like Malcolm Love, Robert Inglis and Sthabile Mazubane and I aim to incorporate these skills in my scientific presentations. It was a wonderful experience meeting young, passionate and excited scientists from all over South Africa. Going into FameLab, I didn't know what to expect and was a bit skeptical. I doubted that I was cut out for this but having gone through the various rounds, I must say, I do not regret it one bit. It has been a really worthwhile experience.

Agent Zee: Any tips for our readers?

Nozipho: I wish to encourage all scientists out there to consider taking part in opportunities like FameLab. It really boosts your confidence for public speaking and you get to learn a lot about amazing research that other young scientists out there are doing.

Main picture: Nozipho presenting her research about carbon nanotubes at the FameLab International finals, held in Cheltenham, England, in June.

Pic: Wikipedia @Mstroeck

WIN with Science Spaza!

Science Spaza wants to know about YOUR experiences as members of science clubs.

We'd like to ask you to complete some sentences and answer some questions. This will help us to learn more about your club. Feel free to leave out questions which don't apply to your club. Everyone who responds has a chance of winning a prize for their science club in a lucky draw competition!

2 lucky science clubs will each receive a ChemStart science kit!

Remember, the more responses your club sends, the more chance your club has of winning one of the kits! Don't forget to put your club name on the form.

You can take a photo of your completed form and send it to Science Spaza at: info@sciencespaza.org or on WhatsApp 076 173 7130 or you can post your responses to: Science Spaza, PO Box 22106, Mayor's Walk, 3208.

Respond by the 31st of August to enter the lucky draw.

The ChemStart
52 Scientific Experiments
contains everything you need to
conduct and perform real scientific
experiments in your home or in your
school – your own mini laboratory! With
52 scientific experiments, you and your
science club will have one for every
week of the year!



Name of your science club: _____

Date: _____

- How old are you? _____
- What is your gender (M/F)? _____
- I joined the science club because _____

- My science club was started because _____

- The adult responsible for my club is a (tick one box):
 TEACHER
 PARENT
 OTHER (who is this person?) _____
- Do you have a club leader?
 YES NO
If you answered "YES" to this question then please complete the following:
How old is the club leader/s? _____
Is the club leader/s a male or a female? _____
- How many members do you have in your science club? _____
- In my club, there is no leader but we all make decisions together
 YES NO
- What I like about the Science Spaza newsletter (*Spaza Space*) is _____

- What I like about the Science Spaza activity worksheets is _____

- What I don't like about the Science Spaza newsletter (*Spaza Space*) is _____

- What I don't like about the Science Spaza activity worksheets is _____

- My club does the activities that are sent to them
 YES NO, because _____
 Sometimes, because _____
- My club received the Hip Hop Health activities and CD that was sent
 YES NO I DON'T KNOW

- My club is using the Hip Hop Health activities and CD that was sent
 YES NO, because _____
 I DON'T KNOW
- My club is planning to use the Hip Hop Health activities and CD that was sent
 YES NO, because _____
 I DON'T KNOW
- My club has used the Hip Hop Health activities and CD that was sent. What did you do with them? _____

- The best thing about Science Spaza is _____

- My club faces some difficulties like _____

- In my club, we are able to continue the club despite these difficulties because _____

- If I could change anything about my club, I would change _____

- If I could change anything about the newsletters my club gets, I would change _____

- In the next year our club would like to _____

- What would be the best way to communicate with your club? (E.g. cell phones, whats app, smss, facebook).

- Have you looked at the Science Spaza facebook page? YES NO
- What would be the best way to get activities and newspapers to your club?

Consent: You do not have to respond to this request, and if you choose not to respond your relationship with Science Spaza will not be affected. This information will be used by the Science Spaza programme to improve our work with you, so please be honest. Remember, there are no right or wrong answers. Your opinions and experiences are important! All information will be treated confidentially. By filling in and sending us this form you are consenting to be a part of this process.



Mixing it up for National Science Week

The Hip Hop Science Spaza team has done it again with the help of the Mlungisi High School Science Spaza club. These amazing learners spent the week thinking about water, food security and nutrition and health and then met with local artists to create some awesome Hip Hop tracks! You can hear them on Soundcloud during National Science Week!

[soundcloud/sciencespaza](https://soundcloud.com/sciencespaza)



YOU
can enter the
Hip Hop Science Spaza 2016
competition now!!

Details and T&Cs at
www.sciencespaza.org
and on the *Science Spaza*
Facebook page



Clockwise from top left:

Burning Desire – Nosipho Mkhize, Nomthandazo Ngcobo, Thabile Jili, Mbathani Mbokazi, Thobani Bhengu.

Improvers – Sphelele Madonda, Noluthando Mchunu, Nokubonga Mtshali, Sphamandla Zondi, Mzwandile Shelembe.

Standard “Izinga” Levels – Amanda Mkhize, Sindiswa Ndlovu, Sabelo Mbanjwa, Luyanda Ngubane, Luyanda Bhengu.

Intelligence – Buhle Mchunu, Nokulunga Dlamini, Thabisile Ngubane, Ayanda Thabethe, Siyabonga Mzila.

Creators – Xolile Ndlovu, Mhlengi Mjwara, Sthuthukiso Sibiya, Hloniphile Ndlela, Andiswa Ngubane.

Future leaders – Nontokozi Khoza, Nokwazi Tuku, Khanyile Langelihle, Nduduzo Ngcobo, Mlondi Mlaba.

Bright Minds of Today Guide the Way to a Better Tomorrow

With National Science Week this year focusing on sustainable development, we wanted to get a scientist's take on a very important issue of sustainability: water! **Lungile Lembede** is a Hydrology student at the University of KwaZulu-Natal. We asked her a few questions.

Science Spaza: Can you tell me about yourself and what field of science you are in and what your current job title is, and at which organization?

Lungile: I come from a town called Newcastle in KZN. I am an MSc. Hydrology student at the University of KwaZulu-Natal.

Science Spaza: What prompted you to enter this field?

Lungile: After reading up on the field, an interest was sparked. I liked the idea of a balance between office and field work. The beauty of water and how we need it to survive also fascinates me.

Water is part of our everyday lives as a basic need for human life, hygiene and even recreational purposes. It is an honour to be part of a scientific community where we have an interest in taking care of our natural resources as best we can.

Science Spaza: What are some of the current issues or challenges in this field?

Lungile: At this moment we should all be aware that most of South Africa is experiencing a drought. This presents a major challenge for us in that we need to find ways to mitigate the impacts of droughts. Additionally, strategies to



involve the public must be put in place so that everyone saves water. Another challenge with the field is uncertainty. In all predictions and forecasts, there is so much uncertainty because we

live in such a complex world. This complexity means that not everything can be factored into every research study, and this can affect the accuracy of research outputs. However, research efforts still go a long way in making us better adapted to our forever-changing environment.

Science Spaza: How did you find the experience with Hip Hop Science Spaza under the theme Science for Sustainable Development and Improved Quality of Life.

Lungile: It was fun and very refreshing to see students so excited about science. It is important for us to reach out to young people and let them know that science is fun.

Science Spaza: Thank you for sharing your time and knowledge with us Lungile! We know you'll help change the world!

Meet Mbalenhle Gwacela and Zandile Ngcobo, who also shared their expertise at the Hip Hop Science Spaza for National Science Week!

Zandile Ngcobo obtained her Certificate in Nutrition from the University of KwaZulu-Natal. She is now a nutritionist at Taylor's Halt Clinic, and advises the community on how to lead a healthy lifestyle.



Mbalenhle Gwacela completed her Master's degree in Agriculture, majoring in Food Security, after a Bachelor's degree in Geography and Environmental Studies and a Postgraduate degree in Policy and Development Studies. She is currently pursuing her Doctorate in Agriculture, also majoring in food security. She is a lecturer at the University of KwaZulu-Natal, as well as Cedara College of Agriculture.

Listen to *Hip Hop Science Spaza* on these community radio stations...

 Vaal community radio www.906fmstereo.com	 Radio 729AM Cape Pulpit www.capepulpit.co.za	 Phalaborwa community www.phalaborwafm.co.za	 Link FM www.linkfm.co.za	 Eden FM www.edenfm.co.za	 Qwaqwa Radio www.qwaqwafm.co.za	 Lukhanji FM www.lukhanjifm.co.za	 Kasi FM www.kasifm.co.za	 Mdantsane FM www.mdantsanefm895
 Mogale FM www.mogalefm.com	 Mozolo FM www.mozolo-fm.co.za	 Radio Helderberg www.radiohelderberg.co.za	 Vow FM http://vowfm.co.za/	 EK FM www.ekfm.co.za	 Whale coast fm whalecoastfm.co.za	 Nkqubela FM ??	 Radio NFM www.radiolfm.co.za	 WRFM www.WRFM.co.za



The **Hip Hop Science Spaza Project** is a national collaboration between popular music artists and learners in science clubs around South Africa to make science accessible to the general public. See www.sciencespaza.org. Science Spaza is an initiative of Jive Media Africa. National Science Week is an initiative of the Department of Science and Technology managed through the South African Agency for Science and Technology Advancement (SAASTA). Find out more at www.saasta.ac.za



National Science Week 2016 Events Guide

National Science Week celebrates *Sustainable Development for Improved Quality of Life* from 8th – 13th August. Find out what's happening near you!

Eastern Cape

Wordwise Media
Lizelle de Bruin
076 686 6750

SANSA
Mr Daniel Matsapola
012 844 0380 / 084 548 7176

**Uitenhage Despatch Initiative
on behalf of Nelson Mandela Bay
Science and Technology Centre**
Singathwa Poswa
041 991 5000

South African Institute of physics
Mr Brian Masara
012 841 2627

Sci-Tech Mathematics (Pty) Ltd
Mrs Nxusani-Mawela
011 466 0746 / 072 584 2449

Breard Foundation NPC
Siwaphiwe Siphahlanga
076 138 7277

Van Lill and Jovner
Suma Jovner
082 436 3195

Brewster's craft (Pty) Ltd
Apiwe Nxusani-Mawela
072 584 2449

Free State

Van Lill and Jovner
Suma Jovner
082 436 3195

**South African Empowerment
Consultants**
Mr Vincent Lawrence Erasmus
086 523 8622

National Zoological Gardens
Mr Ulrich Bernd Oberprieler
012 339 2743/072 599 4253

**University of the Free State
(Boyden Observatory Science
Centre)**
Yolandie Loots
051 401 9751

**Thakamakau Enterprises
Incorporated (Pty) Ltd**
Kgethang Thakamakau
084 925 4779/073 392 6372

National Museum, Bloemfontein
Ancilia van Staden
051 447 9609

MOTHEO
Mr Bischoff B
083 662 1800

**Free State National Botanical
Gardens (SANBI)**
Ms Susan Mandla
051 436 3530/083 391 7959

Gauteng

Johannesburg City Parks and Zoo
Kogie Govender
011 782 9597 / 084 901 5027

**KwaNdebele Science Combined
School**
Mr Philip Kurian
013 973 1674 / 082 973 5901

**South African Empowerment
Consultants**
Vincent Erasmus
073 560 2755 / 011 656 6424

National Zoological Gardens
Ulrich Oberprieler
012 339 2743

UGIS
Ms Imaan Alli
073 360 9762

Space Age Independent
Jessica Ranghi Singh
084 4444 443

**South African Mathematics
Foundation**
David Ramaboka
012 392 9324

Sci-Enza
Ms Puleng Tsie
012 420 2865 / 3767 & 071 880 0584

Community Inspired (Pty) Ltd
Mr Riccardo Langson
060 338 2708

**ArcelorMittal Science Centre-
Sebokeng**
Daniel Motsapi
016 988 0507 / 1369 / 073 614 5127

SANSA Gauteng
Johnny Rizos
072 568 0722

Van Lill and Jovner
Suma Jovner
082 436 3195

Limpopo

Mota Lane (Pty) LTD
Mr Mathekga
079 694 7956

Giyani Science Centre
Mr John Golele
015 812 3782 / 073 431 0736

MANYEO
Xitshembiso Rivombo
083 248 2066

VIP Print
Sherley Monyemorathoe
076 433 9706

**University of Venda/Vuwani
Science Centre**
Prof. V.Sankaran
082 552 0897

**University of Limpopo Science
Centre**
Mrs Annelize Potgieter
015 268 3519 / 082 825 7819

The Palabora Foundation
Phillip Mutshena
083 926 6397

Sonto-Rose Solutions (Pty) LTD
Dr Winston Nxumalo
082 540 4519

Rural Education Festival
Griezel Raphahlelo
078 507 5503

**Limpopo Academy for Science
and Technology-LIASTEC**
Moshitwana
081 476 8329

Soutpansberg Astronomy Club
Kos Coronaios
079 148 4934

Funzani Education and training
SINGO AC
076 544 0852

**Bokamoso Science and
Technology Centre**
Solly Morudu
083 446 0182 / 083 471 3414

Van Lill and Jovner
Suma Jovner
082 436 3195

**South African Empowerment
Consultants**
Mr Vincent Lawrence Erasmus
086 523 8622

Sleg Consulting
Bushy Moabelo
072 871 1897

Northern Cape

University of the Western Cape
Prof M.S. Hartley
Melissa Petersen
021 959 2680

Indalomed
Sweli Maduna
076 548 4747

Van Lill and Jovner
Suma Jovner
082 436 3195

KwaZulu-Natal

The KZN Science Centre

Ashlen Chetty
083 630 9801

The Coloured Cube

Mr Trevor McGurk
011 614 0355 / 076 617 3504

South African Association for Marine Biological Research

Varsha Naidoo Moodley
031 328 8222

Nkazimulo Applied Science

Bathabile Mpofu
082 301 6726

Nguni Villas, projects and events

Mr Khulekani Ndumiso Mnguni
081 474 9333 / 072 772 9218

Jive Media Africa

Sthabile Mazubane
033 342 9382 / 081 367 5996

Femsissa

Vishnu Naidoo
084 591 5935

Durban Natural Science Museum

Theshnie Naidoo
031 322 4211

ArcelorMittal Science Centre-Newcastle

Ms Phinah Manamela
034 314 1247 / 072 895 8926

Sci-Tech Mathematics (Pty) Ltd

Phelokazi Zide
078 225 5022 / 076 316 0315

Van Lill and Jovner

Suma Jovner
082 436 3195

Wordwise Media

Lizelle de Bruin
076 686 6750

South African Empowerment Consultants

Mr Vincent Lawrence Erasmus
086 523 8622

Mpumalanga

KwaNdebele Science Combined School

Kurian P
082 377 5901

Talic Investment Group

Salome Mphela
072 389 7800

Sotobe Ally Investment (Pty) Ltd

Ally Sibiya
076 716 0147

Sabah Intertrading

Bheki Mkhathshwa
071 203 6907

Mondi Science Centre, Career Guidance and FET Skills Centre

Joseph Sibiya
072 438 5347

Mazemfula trading

Mr. M Ndlovu
079 023 5113 / 073 905 1385

Anglo American Science & Career Guidance & ICT Resource Centre

S Simelane
073 029 3014 / 013 691 9353

Guja Guja Trading cc

Mr J Magagula
073 395 4407

Glothakennelda

Ms E Mthombeni
082 405 5651

Ezozweni Trading

Ms Nomthandazo Khoza
076 230 2905

Sci-Tech Mathematics (Pty) Ltd

Mr Timothy Mudiya
011 869 0455 / 083 252 2407

SANSA Earth Observation

Mr Phila Sibandze
079 199 6043

Van Lill and Jovner

Suma Jovner
082 436 3195

Western Cape

West Coast NSW

L Manas
083 246 3667

The South African Foundation for Conservation of Coastal Birds (SANCCOB)

Tamlyn Hardy
021 557 6155

Star People

Auke Slotegraaf
074 100 7237

SANSA Science Centre (Hermanus)

Elisa Fraser
071 473 3337

iThemba Labs

Ambrose Yaga
072 988 8893

Interactive Science Foundation

Portia/Nadine
021 300 3200

Cape Peninsula University of Technology

Cynthia Kontyo
021 959 6124/076 9396 476

ArcelorMittal Science Centre

Ms LMC Dihlabi
007 191 058/082 449 4580

Van Lill and Jovner

Suma Jovner
082 436 3195

North West

Sleg Consulting

Mr Bushy Moabelo
081 333 4930 / 083 979 5279

P Stem Foundation

Varaidzo Mureriwa
076 322 7555

North-West University (Potchefstroom)

Z Friesling
018 299 4239/082 822 3697

North-West University (Mafikeng)

Lerato Molebatsi
018 389 2606

MANYEO

Mr Akani Hlungwane
072 575 7707

Van Lill and Jovner

Suma Jovner
082 436 3195

Wordwise Media

Lizelle de Bruin
076 686 6750

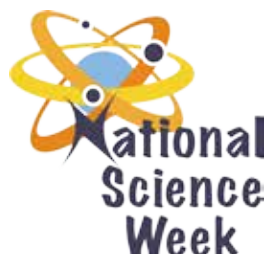
National Science Week is an initiative of the Department of Science and Technology implemented by the South African Agency for Science and Technology Advancement (SAASTA) a business unit of the National Research Foundation.

For more information and to find out more about what's happening near you visit www.saasta.ac.za and www.dst.gov.za



science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA



SAASTA
South African Agency for Science
and Technology Advancement

NEWS FROM THE CLUBS

This is where you, the members of the Science Spaza clubs, get to share your news and have your say about science issues

Homeschool (Boom Science Kids)

We are Boom Science Kids from Homeschool. We were going through old worksheets, such as "Building a propeller". We really enjoyed doing the activities.



Sphelele Madonda, from Mlungisi Secondary School Science Club

"Thank you, Science Spaza team, and keep up your good work. You helped us as learners to better understand the National Science Week theme about sustainable science."

Jack and Jill's Primary School (Jackie's Science Club)

We are Jackie's Science club from the Eastern Cape. As a team we're doing the water pollution experiment along the Xuka River. We found that people dump their waste into the river and living organisms such as fishes, crabs and amphibians die out.

Our recommendation regarding this issue is that people should stop dumping their waste into the water for the sake of aquatic health and also there should be a single dumping site further from the river.



E. coli water kits

Boom Science Kids, Ozone Club, and Good Shepherd Model School Science Club have requested their E. coli water kits. If your science club needs water kits, feel free to contact us, and we will send them to you.



Hip Hop Science Spaza 2015 Winner!

Xolani Nkunzi from the Eastern Cape was the winner of the Hip Hop Science Spaza 2015 competition – he got his song professionally recorded. Find it on the website.



Distribution of Science Spaza clubs in South Africa

There are more than 130 Science Spaza clubs in all provinces that receive Science Spaza products. Science Spaza prints and distributes 10 000 copies of *Spaza Space* quarterly, which includes activity worksheets, *Spaza Space* newspaper, Hip Hop Science Spaza CDs and other learning materials.

These are also sent to more than 30 Science Centres across the country. This initiative targets learners from the disadvantaged backgrounds where learners do not have functional laboratories.

