SCIENCE SPAZA SPACE

EDITION 2 2023

Knowledge is Ncah!

FROM SCIENCE CLUBBER TO SCIENTIST: MEET GORATILEONE

Pic: supplied

The Wonders of SCIENCE

Glenstanta Primary explores the wonders of science. *Pic: Science Spaza*

YAZI CENTRE FOR SCIENCE & SOCIETY IN AFRICA

Jive Media Africa

In this edition ...

Howzit? Welcome to the 2nd Edition of the Science Spaza Space for 2023!

There are lots of exciting things to read and activities to do in this edition of Science Spaza Space. Check out the inspirational story of **Goratileone Oepeng on page 3** – the science clubber-turned-scientist who was also as finalist in the FameLab SA competition in October this year.

Meet a Polar engineer on page 7. We talk **Malaria on page 4**; and all about **ChatGPT on page 8**. What are your grandmother's chances of winning the Lotto? **Find out with Maths on page 9**, and don't forget to make some noise with the **fun musical activity on page 10**. Plus an exciting **competition on page 5**.

We'd love to see what you and your club get up to. Remember to send your photos to **076 173 7130** and your club might be in the next issue! Enjoy the wonders of science you will find in this issue.

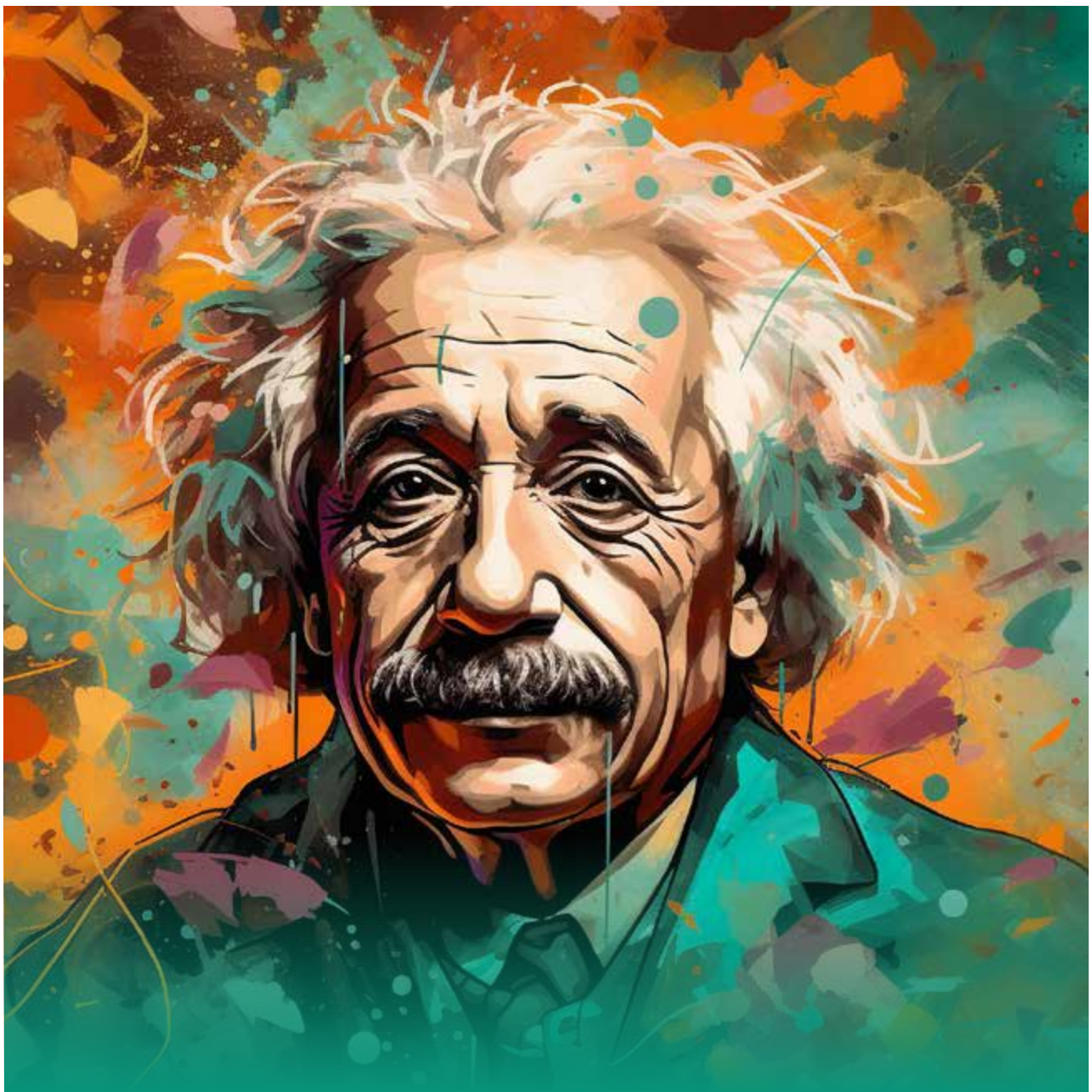
The Science Spaza Team

Spaza Space **is the official publication of the Science Spaza programme, an initiative of the Yazi Centre for Science and Society in Africa (Non-profit Organisation 151-830 NPO) produced in partnership with research communication specialists Jive Media Africa.**

Advertising opportunities
For any editorial enquiries, for more information about *Science Spaza* strategic projects or to advertise on any of the *Science Spaza* channels including print (Spaza Space) online and social media, please get in touch with the Science Spaza team at 076 173 7130 or info@sciencespaza.org

Club management:
To sign up a new club, please visit www.sciencespaza.org. For any enquiries related to club membership, please get in touch with Lungile Ikaneng on 076 173 7130 for calls and WhatsApp or email admin@sciencespaza.org

We are talking to our future leaders. Are you?



Theoretical physicist, Albert Einstein *Pic: Freepik*

Questions ignite the flames of Science

"Think left and think right and think low and think high. Oh, the thinks you can think up if only you try!"
Dr Seuss – from "Oh, the thinks you can think".

I am sure you have heard of the famous physicist Albert Einstein? He was a very smart and curious person and came up with really important ideas and discoveries that helped us understand how the world works. One of his most famous ideas is called the theory of relativity, which is about how time, space, and gravity are all connected.

He liked to think about big questions and imagine things that other people hadn't thought about before. He was always asking "why" and trying to find answers to things that seemed puzzling.

Many of the crises we face in the world today are complicated. To find solutions to challenges like climate change, the energy crisis and biodiversity loss, we need to ask the right questions. We need your help! We need curious young scientists, engineers, big thinkers and innovators who are going to ask the difficult questions and work together to find the answers.

Einstein believed that anyone could be a scientist and discover amazing things if they asked questions and worked hard. How can you help? Easy! Start looking for the wonders of science all around you. Start asking questions about how things work, could they work differently, better or be used to help in another way? And read, read, read! Who knows, what you read today could spark the curiosity of a new discovery someday!

Speak to a scientist

Goratileone's passion for science has taken him to the laboratories of the University of Pretoria where he completed a BSc honours degree in Entomology. *Pic: Supplied*

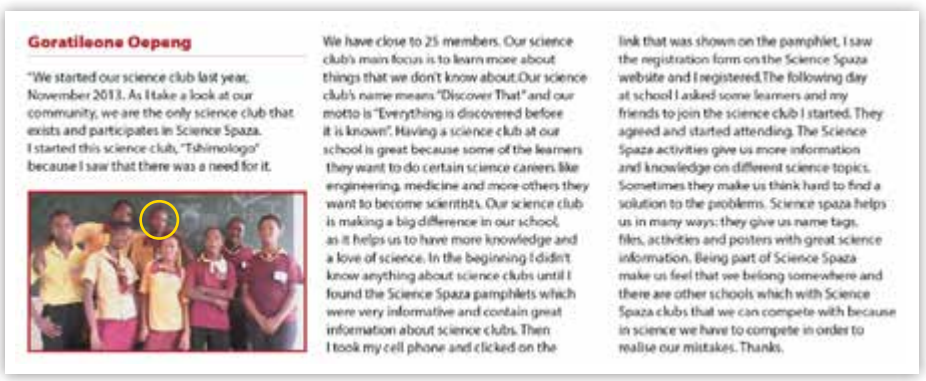
From science clubber to scientist – meet

Goratileone

Goratileone Oepeng grew up in Kuruman in the Northern Cape. From a young age he was always been curious about the world around him and the way things work. At school, he started Tshimologo Science Club and registered it as a Science Spaza Club. In this club, he and his friends could learn and have fun with science together. They did exciting experiments and discovered new things.

Goratileone also learned how to be a leader and help his friends. In 2014 he wrote a letter to the Science Space newspaper where he explained just how much the science club meant to him and his friends – and where he learnt to love science.

Now, after almost 10 years, Goratileone's dreams have come true! He is studying something called Entomology at the University of Pretoria. But what is Entomology? It's the study of insects, like bees!



Goratileone Oepeng

"We started our science club last year, November 2013. As I take a look at our community, we are the only science club that exists and participates in Science Spaza. I started this science club, "Tshimologo" because I saw that there was a need for it.

We have close to 25 members. Our science club's main focus is to learn more about things that we don't know about.Our science club's name means "Discover That" and our motto is "Everything is discovered before it is known". Having a science club at our school is great because some of the learners they want to do certain science careers like engineering, medicine and more others they want to become scientists. Our science club is making a big difference in our school, as it helps us to have more knowledge and a love of science. In the beginning I didn't know anything about science clubs until I found the Science Spaza pamphlets which were very informative and contain great information about science clubs. Then I took my cell phone and clicked on the link that was shown on the pamphlet, I saw the registration form on the Science Spaza website and I registered.The following day at school I asked some learners and my friends to join the science club I started. They agreed and started attending. The Science Spaza activities give us more information and knowledge on different science topics. Sometimes they make us think hard to find a solution to the problems. Science spaza helps us in many ways: they give us name tags, files, activities and posters with great science information. Being part of Science Spaza make us feel that we belong somewhere and there are other schools which with Science Spaza clubs that we can compete with because in science we have to compete in order to realise our mistakes. Thanks.

A letter from Goratileone (circled) in this newspaper ten years ago.

Goratileone's research looks at special chemicals called pheromones that honeybees make. He wants to find the role that the pheromones have on normal honey bee workers. Understanding how these pheromones work could help us understand bees better and help to protect the already under threat honey bee populations.

This research could help us make sure bees can keep doing their important jobs, like **pollinating** plants.

More exciting news

We are so excited to announce that Goratileone made it through to the finals in the FameLab SA competition this year! In this competition, young scientists have three minutes to explain their research to judges in a simple and entertaining way. It was a very exciting final, held in Pretoria. It was also great to have two of our clubs join in the fun. They asked the finalists some very tough questions in the Q&A: well done. And a big shout out to Goratileone: we are so proud to see one of our science clubbers reach for fame through science!

WORDS TO KNOW:

Pollinating – Pollinating is when bees and other insects help plants make new seeds by carrying pollen from one flower to another.

What's the buzz on Malaria?

Did you know that mosquitoes can pass a dangerous sickness called malaria to humans? Malaria is one of the deadliest diseases in the world. It makes more than 200 million people sick every year and at least 600 000 of them sadly, do not survive. Most of malaria's victims live in Africa and most of them are children younger than five.

Malaria kills more than half a million people every year.

But guess what? It's not the mosquitoes themselves that cause malaria. It's caused by a tiny **parasite** called Plasmodium that lives inside the mosquitoes and can infect both them and humans.

A parasite is a tiny creature that needs to live inside or on another living thing, called a host, to survive. When a mosquito with Plasmodium bites a person, the parasite sneaks into their blood and travels to the liver. It grows and multiplies there, then spreads around the whole body to infect and destroy that person's red blood cells.

More about Malaria

If another mosquito bites a person who already has malaria, it can pick up some of the parasites along with its blood meal. This makes the mosquito a carrier of the disease. But don't worry, not all mosquitoes can spread malaria. Only the female mosquitoes that have the Plasmodium parasite, called Anopheles mosquitoes, can give you malaria.

When someone gets infected with malaria, they might start feeling symptoms like fever, chills, and headaches. These symptoms usually appear about 10 to 15 days after being bitten by an infected mosquito. If left untreated, malaria can be really dangerous and even deadly.

Malaria is more common in warm and tropical places because the Plasmodium parasite needs hot and humid weather to survive. If you live in or are visiting a malaria area ask your doctor about medicine that can help prevent malaria. Mosquito nets, protective clothing and insect repellent can also help to keep you safe. It's also important to tell your doctor if you start to feel unwell if you have travelled to an area where malaria is common.

Our Superpower against mosquitoes

Did you know that female mosquitoes lay their eggs in still-standing water. By removing those sneaky places where mosquitoes lay their eggs, we can help control the number of mosquitoes and reduce the spread of malaria. Here's how:

1. Empty the water: If we see any water that's not moving, like in flowerpots, buckets, or old tires, we can empty it out. That way, the mosquitoes won't have a place to lay their eggs.

2. Cover it up: If we have things like water containers or barrels, we can make sure they have lids or covers. This will prevent mosquitoes from getting inside and laying their eggs.

3. Clean it up: Sometimes, we might find places with dirty water that doesn't flow, like gutters or drains. We can help by cleaning those areas regularly, so mosquitoes won't have a chance to lay their eggs there.

We're protecting ourselves and others from getting sick. So, remember to keep an eye out for any still-standing water, and let's work together to keep mosquitoes away!

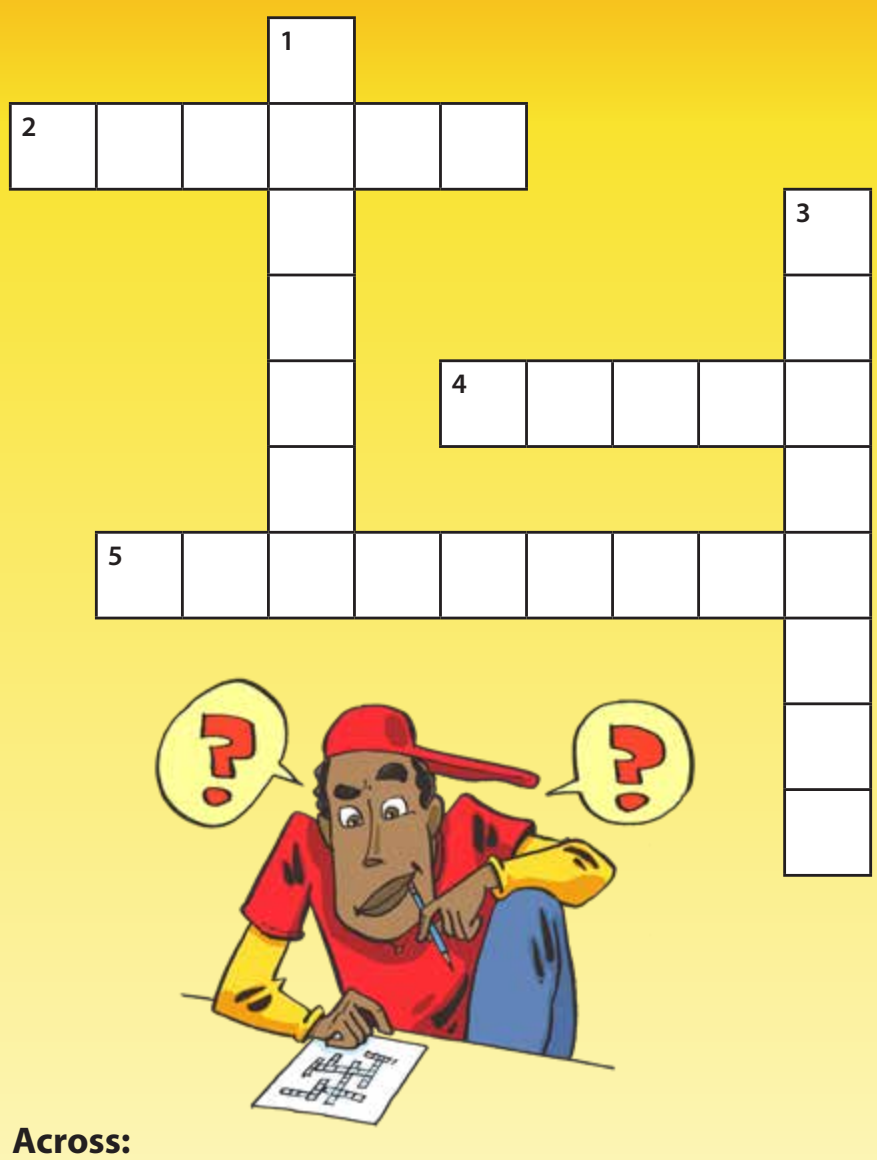
Malaria facts

- There are 3,500 different kinds of mosquitoes. Only females in the Anopheles group can spread malaria.
- Children can be vaccinated against malaria.
- Before 1894 when Patrick Mason discovered that mosquitoes spread malaria, people believed that the malaria parasites were spread by air pollution.

WORDS TO KNOW:

Parasite – A creature that lives in or on another creature called the host. Parasites are unwelcome guests since they get their nutrition at the expense of the host.

PUZZLE YOUR MIND



Across:

2. Only the _____ mosquito can pass on malaria to humans.

4. Remove still standing _____ where mosquitoes lay their eggs.

5. Symptoms of malaria include fever, chills and _____.

Down:

1. The plasmodium parasite causes this disease.

3. An organism that depends on another organism for food and other needs.

**Answers to the crossword on page 9*

Science Spaza gets our hands dirty for climate change!

Who knew mud, roots and trees could be so interesting? Science Spaza took a group of learners to the Beachwood Mangroves Nature Reserve, KZN to meet Dr Jemma Finch and researchers from the University of KwaZulu-Natal. These researchers study the environment to see how sea levels have changed over the years. This gives us a lot of information about how climates have changed too. They do this by taking mud cores out of the ground and studying them. We even pulled mud cores out ourselves to study!

What are mangroves?

Mangroves are special trees that grow in the salty, tidal water along estuaries, river mouths and lagoons. These areas are called coastal intertidal zones. Mangroves have special roots that stand up out of the water so that the plant can 'breathe' at high tide. These roots are known as 'pneumatophores'. Mangroves can live for a long time – often around 100 years, which is why they are an excellent way to learn about climate change!

Learn more about mangroves and climate change in this new video. Scan the QR code below:

Why are mangroves important?

Mangroves have a very special role to play on our planet.

- They form a barrier between the land and the ocean. This helps reduce erosion and the impact of rising sea levels.
- They protect the coast from rising tides and storm surges, especially during extreme weather and natural disasters.
- They provide a home for many creatures, including threatened species like fiddler crabs, mudskippers and whelks.
- They provide a sheltered breeding ground for a lot of fish species. Did you know that two thirds of the fish we eat spend part of their lives in mangroves?
- They form 'carbon sinks' by storing excess carbon. This helps reduce global warming and protects our planet from climate change.

There are over 80 types of mangroves, but only 3 are found at Beachwood Mangroves Nature Reserve. They are:

English	Scientific	Afrikaans	isiZulu	isiXhosa
Red Mangrove	Rhizophora mucronata	Rooiwortel-boom	Umhlume	Umhluma
White Mangrove	Avicennia marina	Witseebas-boom	isiKhungathi	isiKhungathi
Black Mangrove	Bruguiera gymnorrhiza	Swartwortel-boom	isiKhangazi	isiHlobane

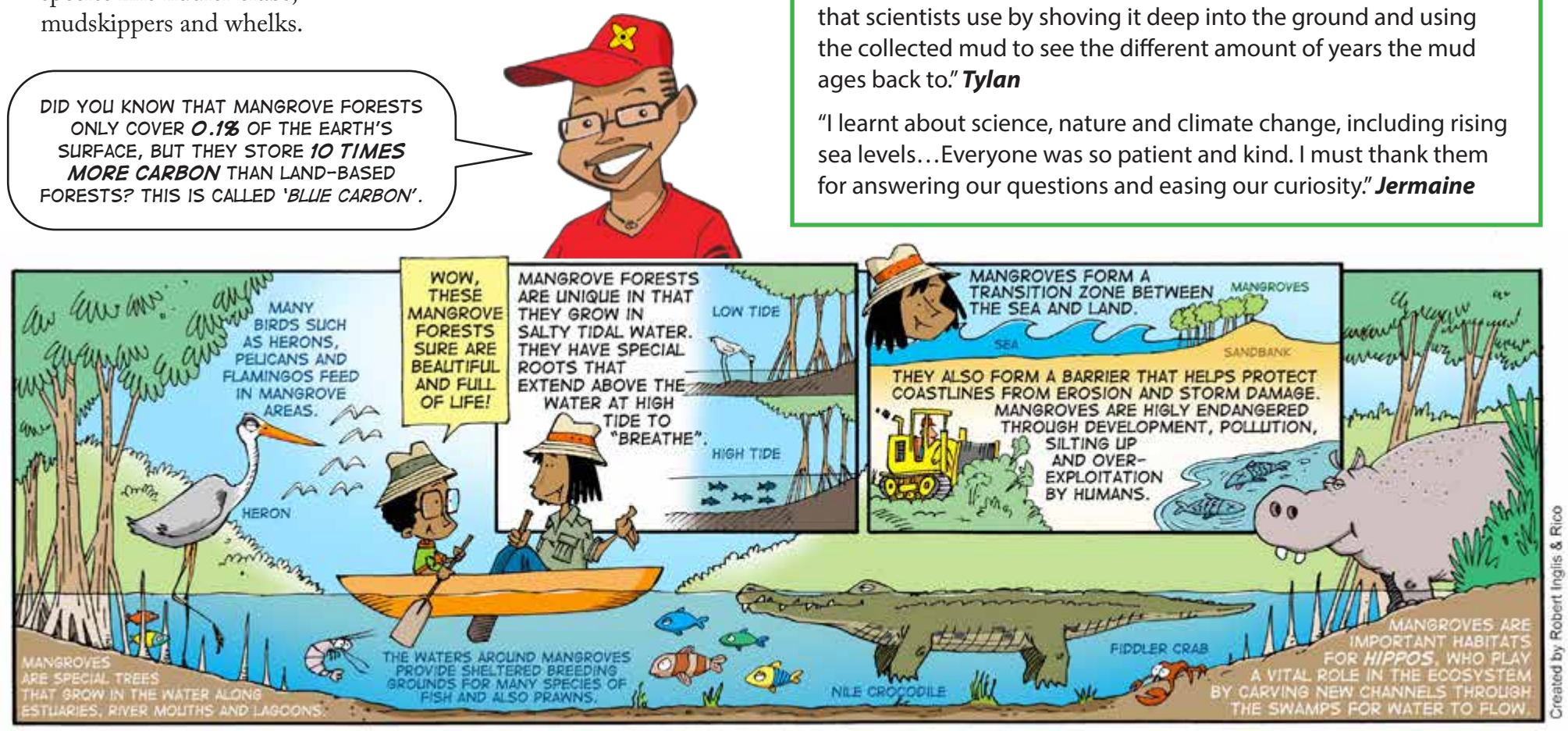
Have your say

Here is what some of the learners told us about their trip to the mangroves:

"On the wonderful excursion we learnt that mangroves are very important to our biodiversity. We saw lots of different species like whelks, salt crystals, fiddler crabs, mud crabs, pencil roots etc." ***Angela***

"I had an experience by going into the mud and using a gadget that scientists use by shoving it deep into the ground and using the collected mud to see the different amount of years the mud ages back to." ***Tylan***

"I learnt about science, nature and climate change, including rising sea levels…Everyone was so patient and kind. I must thank them for answering our questions and easing our curiosity." ***Jermaine***



Let's look at millets: Pearl millet

2023 is the International Year of Millets and what better time to let people know about these important crops in a changing world? As humans, we must rely less on a few plants like wheat and maize and include more diversity in the food that we grow and eat.

Pearl millet (English); **Pennisetum glaucum** (Latin); **Manna** (Afrikaans); **Inyouti** (isiNdebele); **Leotsa** (Sepedi); **Unyawothi** (isiZulu)

Let's look a bit closer at pearl millet, a millet species that comes from Africa.

Pearl millet is a type of grass that can grow up to three metres tall. Pearl millet plants have long roots to find water deep underground. This healthy grain is high in fibre and rich in vitamins and minerals. The best thing about pearl millet is that it can grow in areas that are too hot or dry for most other crops to survive. In South Africa, it is mostly grown in the rural parts of Limpopo and KZN by small-scale farmers to feed their animals. You can use pearl millet to make great Tsonga-style porridge Vuswa bya nwa-huva and steamed bread Ujeqe [Zulu] and Inqebelengwane [Ndebele].

Pearl millet is a hardy crop that can grow in dry and sandy soil. *Pic: Pixabay*

Yummy pearl millet cookies recipe

Ingredients:

- 150 grams pearl millet flour
- 150 grams whole wheat flour
- 180 grams sugar
- 200 grams melted butter

Instructions:

- Mix the melted butter and sugar, rubbing it between the fingers until it looks like breadcrumbs.
- Add the pearl millet and wheat flour to make a dough.
- Roll out the dough and use a cookie cutter to make shapes or roll the dough into little balls that can be flattened on a baking sheet.
- Bake the cookies at 180 degrees for 10 minutes until golden brown.

Do you have a millet recipe to share? Share your recipe with us on 076 173 7130

The science behind hair and beauty at Injoloba Secondary School

Article by: Nteboheleng Moqekela, Ashley Musarurwa, Nongcebo Zondi & Mlungisi Dlamini

Professor Dlova is a renowned dermatologist who also developed a skincare range for African hair and skin. She explained the science of beauty products and good skincare to learners at Injoloba. *Pic: Science Spaza*

When schools reopened a nice surprise waited for Injoloba Science Club. Professor Dlova, a dermatologist and the Dean of the School of Medicine at the University of KZN visited our school. Learners could meet her and pose questions about hair and skin.

Professor Dlova shared great insights about our daily routines. She explained that some of the things we think could benefit us, could harm us in the long run. We got to understand the dangers of using products to change our natural complexion. As learners we learnt that using products to change your skin is dangerous. We are all beautiful in our original skin colour.

If you have a skin condition, you should consult with a doctor and not try to diagnose and treat yourself, you might cause even more damage. Even though the topics were sensitive, they were presented in a warm environment that kept our young minds interested and encouraged interaction.

The information Professor Dlova shared will surely help us and the ones close to us!

HARMFUL ALGAL BLOOMS:
RAISING THE RED FLAG ON RED TIDES!

Bright skies, white sand and beautiful blue water! That's what you want to see when you go on holiday to the coast. Nobody wants reddish-brown water, a beach littered with dead fish and air that burns your lungs. Unfortunately, this is exactly what happens during a red tide.

Seeing red...

Microscopic algae are tiny plants found in the ocean. Normally these plants are the good guys. They make oxygen and are food for many other sea creatures. But sometimes these little plants start to grow faster than normal. That's when they make trouble! Fast-growing algae cause something that scientists call harmful algal blooms (HABs) or red tides. The algae make toxins that kill fish and make seafood poisonous to eat. The water becomes reddish in colour and toxins in the air and water can burn the skin and lungs of people in the area.

Algal blooms occur naturally, but research is showing us that some human activities and climate change are making it worse. Sewage and excess fertilizers from farms sometimes end up in streams and rivers and eventually spill into the sea. This nutrient-rich polluted water is like a feast of food for the red tide algae making them grow faster, causing or worsening the red tide.

A harmful horror

Red tides are not uncommon in South Africa, especially during the warmer summer months. In Feb 2023, West Coast communities saw five tonnes of lobsters walk out onto the shore due to a red tide. These lobsters could cause food poisoning if eaten by humans. Environmentalists collected the lobsters for safekeeping before releasing them to sea in areas not affected by the red tide.

People should stay out of the water and avoid eating seafood from the area during a red tide.

Whether you are on a holiday, a fisherman whose income depends on the sea, or simply somebody who cares about our planet, red tides affect us all.

What can I do?

- Make sure human waste does not end up in rivers and streams.
- Support responsible farming.
- Be a climate warrior by limiting your carbon footprint.

Learn more about how valuable the ocean is in a brand-new worksheet.

Meet a polar engineer:
Dr Tokoloho Rampai

Climate change is changing our planet including the ocean. Dr Tokoloho is a chemical and metallurgical engineer interested in Antarctic sea ice. Her research looks at how global warming affects the sea ice and how the sea ice in turn affects the environment, weather patterns and marine life.

My journey into science:

At school, I enjoyed mathematics, physical and chemical sciences. This paved my way to University where I completed a degree in chemistry. Next, I did a BSc (Hons) in material science and completed my studies with a master's degree in material engineering and a PhD in chemical engineering.

My research:

Today, I combine all my knowledge and experience in my job as lecturer and in my research about sea ice. I also design new instruments to measure sea ice in the icy Antarctic climate. My research can help us better prepare for the future, and knowing this is one of my favourite things about my work.

My advice to you:

If you want to become a scientist, stay curious! Don't be afraid to explore, because science is not about telling you how things should be done, it's exploring different ways of doing everything!

Dr Tokoloho on the SA Aghulhas II near Antarctica. Behind her you can see frozen seawater, called sea ice, floating on the ocean's surface. *Pic: Supplied*

"Hello robot!"

What you need to know about chatbots

Chatbots are computer programmes designed to make you feel like you are speaking with a real human. *Pic: Freepik*

ChatGPT is the new chatbot that everybody is talking about. But what is a chatbot? How does it work and is it a good or bad thing? Let's chat about it!

Chatbots are kinds of computer programmes that make you feel like you are talking to a real person. They do this using a type of programme called natural language processing. The chatbot then uses artificial intelligence (AI) to come up with an answer.

What is AI?

Intelligence is the ability to apply knowledge and skills. Intelligent creatures, like humans, make decisions based on what they know and what they have experienced before. Artificial intelligence is when machines, or computers, are trained to do the same: use information and experience to make decisions. AI is also called machine learning and is a hot topic in the world of computer science. Part of developing AI involves training the software on a lot of data. This is very similar to the way that you develop your intelligence by reading books, learning about new things and memorising the times tables.

Why is ChatGPT big news?

The reason why ChatGPT is big news is that this chatbot uses powerful AI, trained on the most amount of data to date (the entire internet and more!). It was developed by the American tech company OpenAI. For the first time, powerful AI technology is available to everybody anywhere.

Another reason why ChatGPT is so popular is that it gives answers in a way that humans prefer. It really does feel like it's a person talking to you. ChatGPT can find information about something that you are curious about, but it can do a lot more. ChatGPT can plan events, write computer code, write poetry, summarise long or complex information, solve math problems, write articles like this one and much more. At this point, the possibilities seem endless.

Is it all good?

Some researchers are worried about the widespread use of AI by the general public. Do we understand machine learning well enough to be releasing it to such a big audience? Can we identify and control and trust information from ChatGPT and many of the AI's that will soon be thousands of times smarter than any human? Will AI cause job losses and how can we stop criminals from mis-using AI? Do the benefits of this technology outweigh the challenges of it? As with any new technology we need to carefully consider the ethics, its safety and benefits, plus all the challenges.

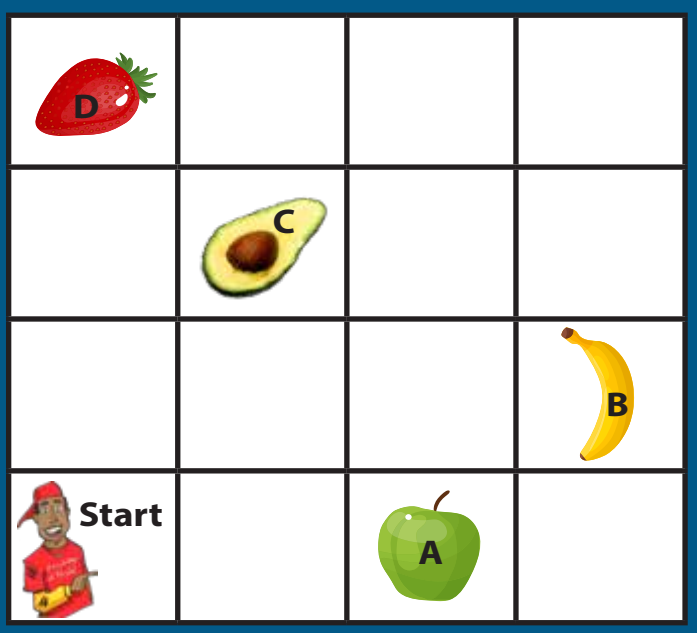
Do you want to be a computer scientist? Try this!

If you want to tell a computer what to do, you need to use a specific language called code. We call the person giving the instructions the programmer. An important part of writing code is to break up a task into steps. Can you write the code to help the Science Spaza gang to collect all the fruit in the right order?

PUZZLE YOUR MIND!

Forward	Back	Left	Right	Pick up
↑	↓	←	→	○

CODE:



What are the chances?

Probability made simple

What are the chances of your grandmother winning the lotto? Should you take your umbrella, how likely is it going to rain tomorrow? Should you invest money in the stock market or save it under your mattress? Did you know that we can use mathematics to help us answer questions like these? Let's look at probability.

Life is full of uncertainty

Probability is a concept in mathematics that looks at things we are not sure about. There are many uncertainties in life. We try to predict the weather, risks, movements in the stock markets and much more. Understanding probability, the chance that something will happen, can help us to deal with uncertainty. Perhaps if your grannie knew how small her chance was of winning the lotto, then she could have saved a lot of money by now.

The probability that something will happen can be calculated by dividing the number of times that the event could happen, by the number of all possibilities.

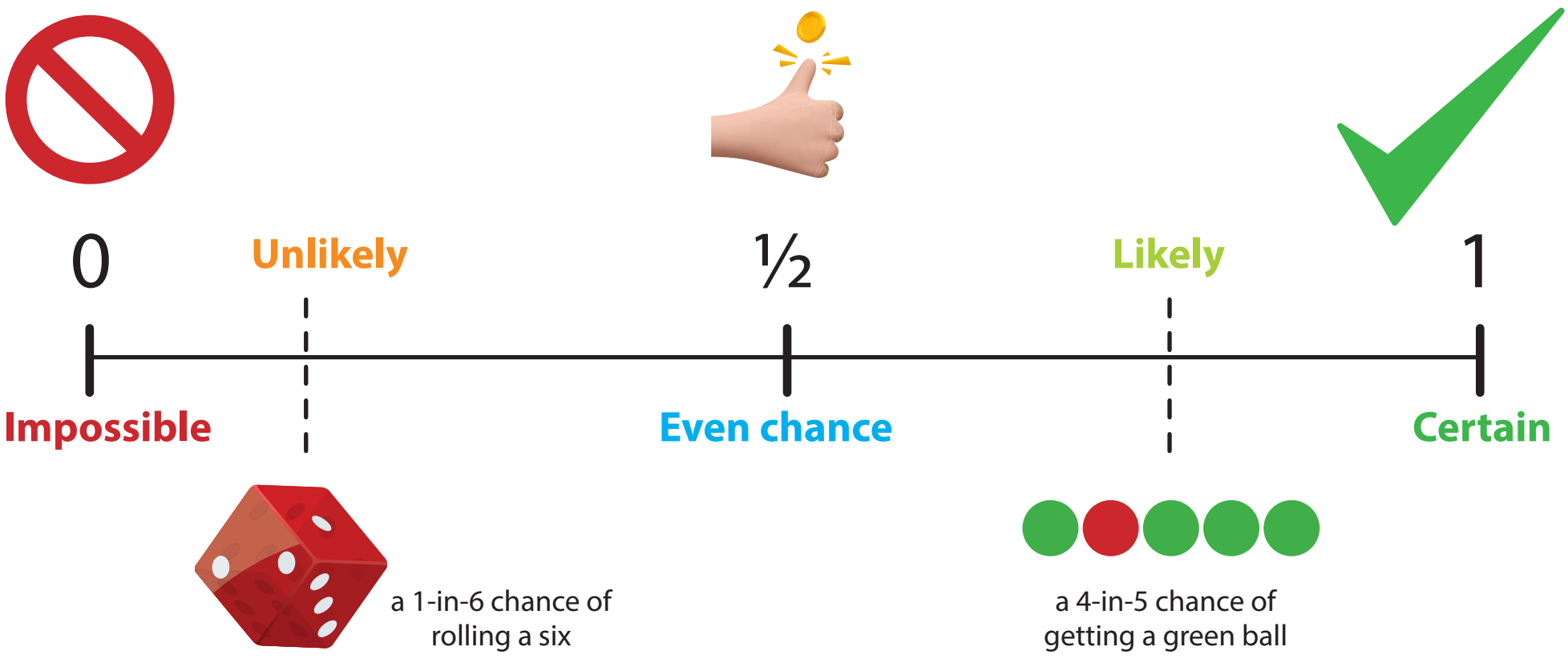
For example, if you want to know what the probability is that you roll a four with a dice, then you divide one (there is one side with the number four on the dice) by six (the dice has six sides that it could land on), so your chances are 1/6.

The probability of rolling an even number is 3/6 (there are three even numbers on the dice 2, 4 and 6 and the dice has six sides).

Calculating probability

What is the probability that you take a red sweet if there are 20 colourful sweeties in the box and only five of them are red? The probability is 5/20 or 0,25. Probability (written as P in math) is always between 0 and 1 where P = 0 means there is no chance, or the event is impossible and P =1 means the event will happen with certainty. A probability of ½ or P = 0,5 means you have equal chances of something happening or not. We say your odds are even. Whether a coin falls heads or tails has a probability of ½ or P = 0,5. The chances the coin will land heads up or tails up are equal.

Check out the new worksheet to see how mathematics and statistics can help you find your way in the world. Chances are high that you will like it!



Answers to the crossword on page 3: 1. Malaria; 2. female; 3. parasite; 4. water; 5. headaches

The Science of sound

Let's make a paper flute!

ACTIVITY PAGE

We all love music, but did you know that every sound starts with a vibration? When something moves about quickly, it vibrates. The vibrations create waves of energy. If these waves move through the air to reach your ear, you will hear sound.

A flute is a musical instrument that makes a sound when the player blows into it. Blowing into the flute makes the air inside the tube vibrate. The player can hit different notes by making the tube longer or shorter. In a simple flute like a recorder, this is done by opening or closing holes in the flute. Here is what you will need to make a simple paper flute.

YOU WILL NEED:

- A PIECE OF STIFF PAPER OR CARDBOARD. (THE COVER OF AN OLD SCRIPT WORKS WELL.)
- A PAIR OF SCISSORS
- GLUE OR STICKY TAPE
- A PENCIL AND RULER

1 ROLL THE PAPER INTO A TUBE THAT IS 2,5 CM THICK.

2 GLUE, OR USE STICKY TAPE, TO KEEP THE END OF THE PAPER IN PLACE.

3 FLATTEN THE TUBE AND MARK HALF A RECTANGLE 4 CM FROM ONE SIDE.

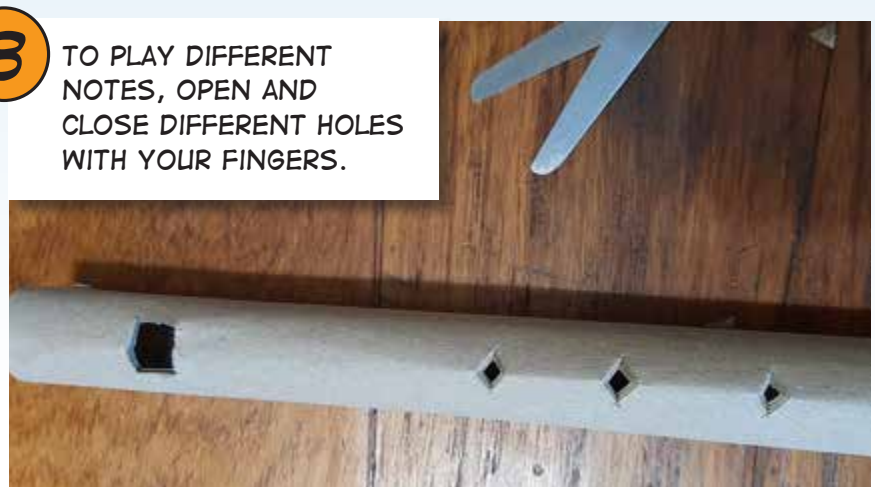
4 CUT OUT THE RECTANGLE AS SHOWN.

5 LIFT ONE LAYER OF THE PAPER AWAY FROM THE INSIDE OF THE TUBE. YOU MIGHT NEED TO USE A PENCIL TO LIFT THE PAPER. FOLD THE LAYER AS SHOWN.

6 TO CREATE DIFFERENT NOTES, FLATTEN THE TUBE AND CUT LITTLE EVENLY SPACED TRIANGLES TOWARD THE OTHER END OF THE TUBE.

7 PRACTISE BLOWING INTO THE FLUTE. PLACE YOUR UPPER LIP ON THE OUTSIDE OF THE TUBE, WITH THE RECTANGLE FACING UP AND YOUR LOWER LIP BELOW THE FOLDED LAYER OF PAPER INSIDE THE TUBE. IT TAKES A BIT OF PRACTICE AND YOU MIGHT NEED TO FIDDLE A BIT WITH THE FOLDED LAYER BEFORE IT STARTS MAKING A SOUND.

8 TO PLAY DIFFERENT NOTES, OPEN AND CLOSE DIFFERENT HOLES WITH YOUR FINGERS.



9 HAVE FUN!

NEWS FROM THE CLUBS

Meet the winners!

Palaeontologists at the University of KwaZulu-Natal (UKZN) love learning about the past by looking at fossils. But these researchers don't just love old things, they also love seeing young kids discover the exciting world of science!

Earlier this year, the palaeoecology lab at UKZN challenged science clubs to take part in the Sediment Science Competition. Learners could send in pictures of their science club exploring the different layers that we find in soil.

Congratulations to Ozone Science Club in Estcourt, Jackie's Club in Engcobo and the Rangrage Little Butterflies in Pietermaritzburg. These winners were spoiled with prize packs filled with useful goodies for their clubs. As a bonus, the Science Spaza gang visited the Little Butterflies to deliver their prize and do a colourful experiment with these young explorers. Thanks to all the clubs who took part and to the palaeoecology lab research group at UKZN for sponsoring this exciting competition!

"A palaeontologist learns about the past by looking at fossils."

The Science Spaza gang had some colourful fun with the Rangrage Little Butterflies while awarding their UKZN palaecology sediment science competition. *Pic: Supplied*

Ozone Science Club from Riverdale Primary School – Estcourt (KZN). *Pic: Supplied*

Jackie's Club from Jack and Jill Primary – Engcobo (EC). *Pic: Supplied*

Endinako Guma from Jackie's Club collecting water from Xuka River. *Pic: Supplied*

Hands-on science with Glenstantia Primary School

There is a great quote that says: "Tell me and I forget, teach me and I may remember, involve me and I learn." The science club at Glenstantia Primary School in Gauteng loves to get their hands dirty when learning new things. The Science Spaza gang popped in to join the learners for a slimy experiment.

Learners at Glenstantia Primary School making slime and having fun during a science club meeting. *Pic: Science Spaza*

Science clubs thrilled with their *Spaza Space* Skin Edition

Setumo Science Club from Stellain, North West. *Pic: Supplied*

Knakky Souls Science Club. *Pic: Supplied*

START YOUR OWN SCIENCE SPAZA

1. A GROUP OF FRIENDS WHO ARE EXCITED ABOUT SCIENCE!
2. A PARENT OR TEACHER TO ASSIST YOU
3. A TIME AND PLACE TO MEET
4. SOME *CURIOSITY* AND AN INTEREST IN FINDING OUT MORE ABOUT THE WORLD!

Scan the QR code below to complete the club registration form. Once you've submitted your form, we'll be in touch!

Knakky Souls Science Club appreciation from members with tight hairstyles. *Pic: Supplied*

Appreciation from members with acne. *Pic: Supplied*

Science Spaza is a programme of the Yazi Centre for Science and Society in Africa, a registered NPO and Public Benefit Organisation. *Spaza Space* is produced in partnership with research communication specialists Jive Media Africa.