

THE BLUEPRINT

Paarl Boys' High | Hoër Jongenskool Paarl

BLUEPRINT REDAKSIE



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Timothy November



Charl Steenkamp



Diego Zanato

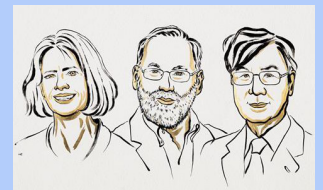
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2025

A Year of Bona Fide Blue Brilliance

Matthew Lamprecht

2025 has undeniably been a fruitful year for the school. Echoing the resolution of entering "Lion Mode", Boishaai has collectively worked towards the maintenance and development of its standing reputation of excellence. From academics, sport and culture to improvement of infrastructure and exciting new projects, Boishaai has made 2025 unforgettable.

On the academic front, Boishaai stayed strong. Besides impressive 2024 NSC results, a growing number of students placed on the quarterly merit list, indicating a healthy growth in results, as intended by the year's academic improvement plan initiated by the staff. In the world of Olympiads, Boishaai also broadened its horizons by competing in the International Robotics Olympiad and maintained steady performance in multiple mathematics Olympiads.

Investigating the year's sport results, the boys' talent and unique determination further become apparent. In the world of track and field, Prestige Athletics

was won for the 6th year in a row, alongside Paarl Girls' High School, and multiple gold and silver medals were attained at the national level. Rugby proved equally impressive, with 5 SA Schools rugby players and 2 WP Sevens players contributing to a year of excellence, as exemplified by the first team's official ranking of no. 1 nationally and a climatic Interschools victory. Additionally, the monumental Brug Street Project that was initiated this year promises to sustain and further grow Boishaai's rugby (and cricket).

The golfers brought back another Interschools victory and impressed with a top 5 ranking in the SA Championships. Chess also showed remarkable growth, placing 2nd at a national tournament, solidifying its stance as one of the strongest teams in the country. Several Boishaaiers also proved their fortitude and sportsmanship in a variety of other external sporting events. Notably, there were national and world champions in areas like precision

shooting, water skiing and karate. Living up to its motto of "Boishaai Bied Balans", 2025 stood strong in this regard. From the resounding success of flagship events like the Picnic Concert and Orkesfees to the establishment of a brand-new Jazz Band, the music department flourished, with several students also shining in national competitions. The drama department displayed similar excellence, with notable achievements in local competitions like the annual Filmit Festival.

Looking back on 2025, it is clear that Boishaai lived up to its endeavours of continual improvement as "First Among Equals". It is this drive to maintain excellence and improve perpetually that instils these words with meaning and makes Boishaai special. It is the unique convergence of tradition, development, support and ambition that elevates the school to an iconic status. As we get ready for the holidays, let us celebrate the success of the past year and gear towards an even more prosperous 2026!

THE BLUEPRINT NEEDS YOU!

If you have heard a student or a teacher saying anything funny, inspiring or memorable, please submit a campus quote below:

https://docs.google.com/forms/d/e/1FAIpQLSeANH2Tcz_nXZtFkQUXrrW4U3ZVV9aV1vYUNpmh5w3QzJNRug/viewform?usp=dialog

Boishaaier Skiet vir die Sterre

Matthew Lamprecht

Rynard de Beer, Graad 11 leerder en prefek vir 2026, het onlangs geskiedenis gemaak deur 'n wêreldrekord op te stel in die Junior (0. 19) 50m Unlimited afdeling van die World Rimfire and Air Rifle Benchrest Federation (WRABF) World Cup in Finland. Benewens sy skietprestasies, maak Rynard 'n gereelde verskynsel op die merietelys, verteenwoordig hy die skool met swem en rugby en is hy 'n vurige redenaar en debateerder wat op nasionale vlak al uitgeblink het – 'n ware voorbeeld van 'n Boishaaier wat op alle vlakke presteer.

Rynard het op 7 jaar oud met sy pa begin skiet; oorspronklik van die Oos-Kaap, is skiet en jag nog altyd deel van sy lewe.

Só het 'n passie vir die sport begin ontwikkel, gegrond in die ondersteuning en mentorskap van sy pa en ander lede van die skietgemeenskap. Rynard deel dat hy derugaans by 'n verskeidenheid mense meer leer en sodoende verbeter. Vir hom is die oefening en voorbereiding wat vereis word om te presteer 'n integrale deel van wat die sport vir hom lekker maak. Van die bepaling van die gewig en grootte van pellets tot die oorweging van faktore soos wind, temperatuur en druk op die baan, maak die verwikkeldhede van die sport dit kompetierend, maar lonend.

Die grootste uitdaging van skiet, meen Rynard, is die mentaliteit wat vereis word om suksesvol

te wees. As skuts nie kan kalm bly na slegte skote nie, sal hulle net al slegter skiet. Hy deel, byvoorbeeld, dat 'n reëndruppel op een van sy pellets geval het en 'n 5 punt verskil veroorsaak het – 'n hobbel wat nie sy algehele prestasie affekteer het nie. Hierdie is ook 'n voorbeeld van die ineenloping van komplekse veranderlikes wat die sport moeilik maak. Met baie ligter pellets as jaggewere, wat van groter kalibers is, word die gewere wat Rynard gebruik met lug gedruk. Te gevul met lug, en die pellets, so lig as 0.5g, se rotasie sal verkeerd wees en met 'n enkele reëndruppel kan resultate beïnvloed word.

Buiten sy wêreldrekord, het Rynard silwer medaljes in die 25m Light Varmint (0.5g), 25m Heavy Varmint (0.8g) en 25m Heavy Varmint Senior Span

afdelings onderskeidelik verower. Rynard het wel ook 'n indrukwekkende lys prestasies as redenaar en debateerder, wat 1ste plek in die 2023 Podium Pret Nasionale Finaal, 1ste plek in dieselfde jaar se 5 minuut-voorbereide Oppie Tong Af Finaal en wenner van die Historium Debatstoernooi as deel van sy span insluit, onder andere. Gesamentlik, suggereer hierdie prestasies 'n blink toekoms vir Rynard, wat BRek wil studeer na skool en eendag 'n leierskapsposisie in die besigheidswêreld wil betree.

Die skool is geweldig trots op Rynard en met sy drome van eendag deelneem aan die Olimpiese Spele, skiet Rynard aanhoudend vir die sterre. Bowenal, bly Rynard altyd 'n ware Boishaaier en skyn sy nederigheid helder.

Paarl Boys' High Chess Festival 2025

Diego Zanato

The 3rd annual chess festival, hosted by Paarl Boys' High, once again brought talented teams from across the country, creating an atmosphere of strong competition and school spirit. Held at the Town Hall, the event saw players seated deep in thought behind their boards, making strategic moves while parents, coaches and fellow teammates watched with pride.

In the Elite Division, featuring the strongest teams, the final standings after six rounds were as follows: 1st – Curro Durbanville HS A (5 wins, 0 draws, 1 loss);

2nd – Paarl Gimnasium A (4 wins, 1 draw, 1 loss); 3rd – Queen's College Boys' HS A (4 wins, 0 draws, 2 losses) and 4th – Paarl Boys' High School A (4 wins, 0 draws, 2 losses). Although we didn't win, unlike previous years, the results highlight the high standard of play and reflect well on our own team's efforts.

For our school community, the day offered more than just rankings; it was an opportunity to witness the quieter side of competition and the dedication and teamwork it involved. Learners who were new to chess

had the chance to step up, while senior players led by example. Parents and coaches contributed to the lively atmosphere, quietly cheering on their teams and engaging with the players during breaks. The event helped to uphold the values of our school – good conduct, good scholarship, and good sportsmanship.

Warm thanks are extended to the organising staff at Paarl Boys' High for hosting a smooth, well-run tournament, to all participating schools for contributing high-quality teams and to the parents and coaches whose presence enriched the experience. As we look ahead, the

chess programme is committed to growth. We will focus on strengthening critical areas such as endgame strategy and time-pressure decision making, while encouraging more learners to take part and contribute to our future success.

This year's festival was a proud occasion for our school. All the teams played with dignity, represented Paarl Boys' well and contributed to a day full of intellectual competition. We look towards next year with confidence and with the intent of climbing back onto the podium and showcasing the best of Paarl Boys' High School.

"If you try to find a needle in a haystack, you won't find it, but if you fall into the haystack, it'll prick you."
~ Daniel Fulton

Meaning is a Jumper You Knit for Yourself

Charl Steenkamp

The question to the ultimate meaning of life, the universe and everything has troubled humanity since its inception - and is still left unanswered. However, this has not stopped them from trying to answer it, nor has it stopped me. Even though I may not reach a conclusion, this fact has not dissuaded me from embarking on this adventure.

Eventually, I have realised that meaning is a jumper you have to knit for yourself: it cannot be found or given, but rather something that you have to painstakingly craft and embrace on your own - and if you fail to do so, you will be left shivering outside in the cold, dark meaninglessness of reality.

Naturally, I chose to embrace this meaninglessness instead of adopting some superficial lie that tries and fails to give me the false reassurance that there is meaning and purpose to my dull, ordinary life. Unfortunately, reality is not as sympathetic as we would like it to be: the existence of human civilisation is seemingly thanks to a lot of luck, where accidents upon many accidents have resulted in our planet forming at just the right distance away from our Sun to create a temperature suitable for the formation of life, whereupon geological and meteorological activity have shaped its composition to include water, carbon, oxygen and many other elements required for life. The statistical improbability for the formation of life to occur has led humans to believe that they are special and that their lives have inherent meaning, which might not necessarily be the case.

I had decided to take it at face value - that there is no ultimate purpose, because I have realised the colossal insignificance of my own life. No matter what I do, the Earth would still continue to exist. The Sun will still explode in a supernova within ten billion years. The universe will still inevitably endure a slow demise due to heat death.

If anything, this realisation has increased my motivation and made me develop a thirst for knowledge - or rather, the pursuit thereof - because even though I might not reach a satisfiable conclusion, what would be the harm in doing it anyway? And so I chose to dedicate my life to uncovering the veil obscuring the truth behind this mysterious world by pursuing physics.

The deeper I went down the rabbit hole of lifting that veil, the more I discovered how absolutely clueless we really are, because even physics is not able to completely describe the world. As it turns out, it only concerns itself with creating models of the world that can be used to make assumptions and predictions. As an analogy, if you were to let a toddler play a game on a tablet, they would try to figure out which buttons influence specific actions

in the game and try to win by applying their understanding of the relationship between the physical buttons and in-game actions. However, the toddler would never know about how the game fundamentally works, like its underlying code nor the hardware and circuitry that the game runs on. Physics works much in the same way: we try to model reality by analysing the relationships between things, like mass and gravity, but we still do not know how these things fundamentally work. For example, some theories model gravity as a force, while others model it as the curvature of spacetime, but that does not necessarily mean that reality works like either of them. In the end, I realised that we may never discover the true nature of reality.

And that is okay, because I prefer questions that I cannot answer to answers that I cannot question, as then I at least have something to ponder rather than nothing to do.

The Code to Live By

Nicolaas Kruger

For centuries, people have wondered and speculated about what it is that gives life meaning and whether or not life itself has any meaning to begin with. However, after all this time, the search for the code by which to live your life has been inconclusive and unfruitful.

That being said, after much deliberation, in the humble (and possibly naïve) opinion of my teenage self, I do believe that I have the answer:

Passion and curiosity.

These two seemingly simple things are what I place as the highest priorities in life. But why do I believe this?

Passion is your drive. Passion is love, it is dedication to a craft, it is religion – passion is the very thing keeping you alive and has the ability to set your heart ablaze like nothing else. In order to get going, to stay moving forward, you require passion. Finding your passion is a privilege and the ultimate goal in life.

Curiosity is the art of noticing. It requires you to accept the world around you; to live and breathe it. It is the most important form of mindfulness, and you need to master it. Once you have, you are enabled to use the world around you, not as a tool, not as a drain, but as a source of energy – a source of passion.

Curiosity fuels passion, and passion fuels curiosity. They are co-dependent and together they are the key to a fulfilling life – once you have true passion and true curiosity, eventually, with time, patience and an open mind, everything falls into place.

So, to the question of the code to live by, my answer is this:

Be passionately curious.

"You have your way. I have my way. As for the right way, the correct way, and the only way, it does not exist." ~ Friedrich Nietzsche

Boishaiers represent at Pretoria Music Competition

Matthew Lamprecht

On the 16th and 17th of October, I – alongside fellow Grade 11 student, Andro Louw – ventured to Pretoria to take part in the annual UNISA South African Music Scholarship Competition held at the Miriam Makeba Concert Hall. With only 9 other competitors invited, the competition aims to support the top candidates of UNISA's Grade 8 (highest graded examination) Practical Music Examinations, with a variety of cash prizes being awarded. As even participating is a significant feat, having two of the school's musicians being invited is a special testament to the culture department's strength.

Flying to OR Tambo International on the 14th, we had to arrange for practices with an accompanist beforehand to ensure optimal performance during the competition. Welcomed by the soft purple cushioning of Jacarandas lining the streets, we buzzed with excitement as the performance day approached.

Andro presented an exciting program that saw him switching between the alto and soprano recorders. The former was used for a French Baroque suite by de Boismortier and an exciting South African composition by Neil van der Watt,

with the latter being employed for an electrifying rendition of Vivaldi's *Goldfinch* concerto. Containing beautifully lyrical passages, the van der Watt presented unique challenges in the use of the player's knee to extend the range of the recorder; Andro, however, undeniably did the piece justice. A bona fide Baroque expert, Andro's tasteful use of ornamentation in the de Boismortier and incorporation of an original cadenza (solo passage that he wrote on his very own!) in the *Goldfinch*, coupled with his smooth tone and clean articulation made for an enjoyable performance.

My program consisted of a solo Fantasia by Telemann, the first movement of Mouquet's popular *La Flute de Pan* as well as *Mabalél: Fantasia op die gedig van Eugene Marais*, by South African composer, Hendrik Hofmeyr. The first piece gave me a unique opportunity to display my tone and mastery of the Baroque style with the other two pieces allowing me to share a clear narrative with the audience through my flute. The Mouquet, for example, is based on the story of Pan, a god from Greek mythology, and contains many pastoral elements. Thus, I aimed to convey a scene reminiscent of the busy day of a shepherd living in the mountains, my flute acting as Pan's very own reed pipes. The last piece presented an entirely different challenge and narrative quality. Containing simple, jovial melodies, a range of extended techniques and highly virtuosic passages, the piece presented a poignant depiction of Marais's poem, *Mabalél*, that follows a blissfully ignorant young girl trotting along a tranquil path towards a brooding crocodile, awaiting



In the Miriam Makeba Hall

her death. From slap-tonguing (a technique involving the quick manoeuvring of the tongue to create a distinctly sharp percussive effect), that imitated the snapping of a crocodile's jaws, to tongue-ramming (a technique involving the stopping of the flute's hole with the tongue to create a round, explosive sound), that suggested Mabalél's last breaths, the piece was a compelling tone poem.

Having been there last year and ending up Runner-Up with the violin, it was a lovely experience competing again, this time with a companion. Following our stellar performances, both Andro and I received certificates of participation at the Prize Giving Ceremony and I was additionally awarded a Du Toit-Van Tonder Music Scholarship and UNISA South African Composition Prize for best performance of a South African composition (which I was also awarded last year with my violin). Following the Prize Giving, Andro and I enjoyed a delicious reception buffet and had great fun talking to the other musicians, from all across the country.

The competition had been a great success, illuminating Boishai's strong culture department and granting the competitors a chance to connect and enjoy a variety of music.



After the Prize Giving

"I might not be able to outplay them, but I can surely outpractise them" ~ Stuart Martin

Juf. Götze Tree Af 'n Onderhoud

Helgard Nolte

1. Wat is Juffrou se gunsteling herinnering van HJS?

Om 'n gunstelingherinnering (een woord) uit te lig is moeilik. Beslis die akademiese hoogtepunt van my matriekgroep van 2024 se uitslae na die NSS-eksamen - wat bewys water hoogtes 'n klasgroep wat bereid is om uit hul foute te leer, kan bereik in enige vak (uit die 30 manne het 13 van hulle 'n gemiddelde A vir Afrikaans behaal en 13 het 'n gemiddelde B-simbool behaal!). Op emosionele vlak sou ek beslis die emosionele wiptrein-ervaring met elke interskole gedurende die laaste paar minute van elke wedstryd uitlig. Die lekkerste herinneringe koppel ek egter aan debat en debatering: Peter Pentz en Juandre Boshoff wat aan die ATKV Nasionale ronde deelgeneem het; Kian Ontong en Kent Fobian saam met wie ek Cambridge toe gegaan het vir die Internasionale English Debating kompetisie. Al my verskillende Engelse en Afrikaanse debatspanne se manewales, voorbereiding en prestasies sal altyd vir my uitstaande herinnerings wees.

2. Hoe lank werk Juffrou al by HJS, wanneer het Juffrou begin en hoekom het Juffrou HJS gekies?

Ek het in 2008 by HJS begin en is dus nou amper 18 jaar hier. My ervaring

van HJS het as pasgetroude in 1984 begin met die eerste interskole wat ek saam met my man in gietende reën bygewoon het, aangesien hy in 1975 by HJS sy skoolloopbaan voltooi het. Daarna het my seun besluit hy wou na HJS kom en dit het daartoe gelei dat ek sy hoërskooljare saam met hom wou beleef. Ek het dus gebid vir 'n pos hier by HJS. En toe mnr. Swart my skakel om te sê hier het 'n Afrikaanspos oopgegaan, het ek dit as gebedsverhooring beskou en dadelik geskuif – en wonderlike saamry-ervarings met my seun gedeel as ons soggens en smiddags die pad aangedurf het skool toe of huis toe.

3. Wat sal Juffrou die meeste mis van HJS?

Ek sal moontlik die samehorigheidsgevoel binne ons Afrikaansvakspan die meeste mis, die saamlagoomblikke; moontlik die uitdaging om nie-akademiesingestelde manne sover te kry om hul huiswerk te doen; moontlik die uitdaging om enige matrikulant vir die eindeksamen voor te berei.

4. Wat is Juffrou se planne vir die toekoms?

Wat die toekoms betref, bly ek steeds aan by die eksamenpaneel – ek sal dus steeds onderwysverwant besig bly en die dinamika van vraestelle opstel en modereer beleef. Maar ek sien daarna uit om net leef-tyd, muftyd en sosiale tyd te kan hê.

Ek bewonder altyd mense wat soggens voor hulle werk toe gaan, met hulle honde kan gaan stap of sommer net kan “wees” sonder om altyd gejaagd te voel. Ek wil tui-nmaak, naaldwerk doen, met my kinders en kleinkinders tyd span-deer. Ek beplan om volgende jaar vir 'n redigeerkursus by Stellenbosch in te skryf en redigering te doen. En ek wil leer om 'n trekklavier te speel. (Weet iemand dalk waar ek een kan koop?)

5. Wat is dit van onderwys wat Juffrou so aantrek?

Onderwys is 'n ongelooflik dinamiese beroep, veral as jy passievol oor jou vak is. Jy is nie net 'n leermeester op akademiese vlak nie, maar ook oor die lewe. Ja, jy is 'n verkeerskonstabel in die gange, 'n polisieman wat die skuldiges wat nie huiswerk doen nie, uitsnuffel; 'n sielkundige en berader; jy is 'n ma en 'n oor vir iemand wat dit nodig het; jy is 'n vakkundige en spesialis op jou gebied. Wys my enige ander beroep met soveel dimensies! Ja, die oningeligtes beweer dat jongmense soveel erger is en dat die dissipline agteruitgaan en dat die onderwys-standaard afneem ens. ens. (aan die leser: herken jy die polisindeton?), maar uiteindelik wil elke leerder in jou klas net weet jy weet van hom, hy is belangrik, hy is geliefd. As ek weer moes kies, sou ek beslis die onderwys kies.

Geskiedenis-onderwyser Raak Professor

Charl Steenkamp

Na 'n dekade van onderrig by Boishaai is dit ongelukkig tyd om ons gekose geskiedenis-onderwyser te groet: Mnr. Johann Obermeyer het bedank en 'n nuwe pos as professor by Akademia in 2026 aanvaar.

Mnr. Obermeyer het by Boishaai aangesluit as 'n geskiedenis-onderwyser in die derde kwartaal van 2014. Op soek na 'n tydelike pos, was hy oorspronklik onder die indruk dat hy slegs vir een kwartaal hier sou gebly het, maar omdat daar min mense met kwalifikasies in geskiedenis was en dus 'n moeilike pos was om te vul, was hy gevra om langer te bly. Althowel dit 'n “chaotiese tyd”

volgens Mnr. Obermeyer was om in die derde kwartaal aan te sluit tydens Interskole, was hy bly om 'n beter perspektief as onderwyser te kry oor die rustiger akademiese werksietiek.

Tydens sy eerste twee jaar by Boishaai het hy terselfdetyd aan sy meestersgraad gewerk en het sy MA in Geskiedenis by die Universiteit van Stellenbosch in 2016 ontvang. Sy geskiedkundige agtergrond het bygedra tot die unieke wyse waarop hy effektief klasgegee het deur 'n onderwerp aan te bied uit verskillende perspektiewe uit om 'n holistiese beeld te skep.

Sy agtergrond as 'n onderwyser staan ook uit deur sy effektiewe pedagogiese toepassings waarby hy elke leerder deel van die proses maak. Hy sê gereeld vir sy leerders dat hy nie “vir (hulle) kan leer nie”, maar dat hy slegs vir hulle indirek kan help om te

leer deur vir hulle te help om die regte vaardighede op te bou en die relevante hulpbronne aan hulle bekend te stel.

Volgende jaar gaan Mnr. Obermeyer sy loopbaan bevorder as 'n professor by Akademia, waar hy vir eerste-jaar studente in sosiale wetenskappe- en geskiedenis-onderwys gaan klasgee asook begin met sy Doktorsgraad in Onderwys, wat gaan handel oor die impak, effektiwiteit en nuttigheid van Geskiedenis-handboeke wat na 1994 geproduseer is.

Dit was 'n moeilike besluit vir Mnr. Obermeyer om die inisiatief te neem om sy loopbaan te bevorder en sodoende vir Boishaai te verlaat, maar na 10 jaar is hy tevrede met alles wat hy hier gedoen het en al die seuns wat hy gehelp het. Na aanvraag oor wat hy die meeste by Boishaai sou mis, het hy gesê dis “die seuns.”

“Swem vissie, swem.” ~ Ian Uys

The Nobel Prize in Immunology

Pieter Combrink

The Nobel Prize in Physiology and Medicine for 2025 was jointly awarded to Mary E. Brunkow, Fred Ramsdell, and Shimon Sakaguchi, based on their research and discoveries in ¹Peripheral immune tolerance and ²T-reg's in ³homeostasis of the immune system.

Their discoveries revealed the mechanisms that enable the immune system to distinguish between self and foreign objects – a core necessity for the immune system. This helped scientists and other medical specialists to understand autoimmune diseases, organ transplantation, and clinical interventions.

The immune system is responsible for attacking external threats, such as ⁴pathogens, while preventing collateral damage to the body's own tissue. Before 1990, the understanding of immune regulation was limited only to the central mechanisms occurring in the ⁵thymus. After the discovery of T-regulatory cells (T-reg's), peripheral tolerance – a system that plays a crucial role in suppressing misfired immune activation – was established.

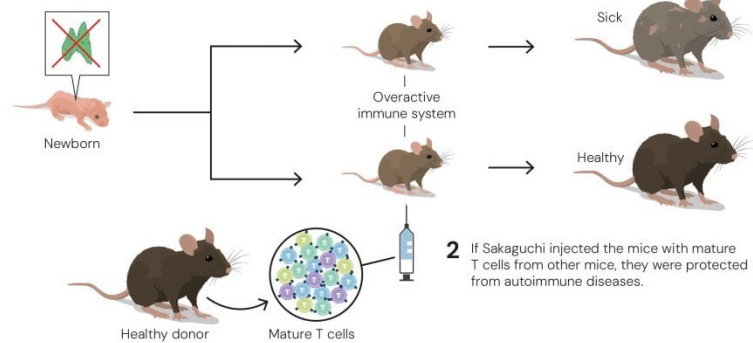
Immunologists of previous generations hypothesised the existence of suppressor cells; however, they were unable to identify the mechanism. Sakaguchi first identified the subclass of ⁶CD4⁺ T cells – characterized by the expression of ⁷CD25, which actively suppresses immune activation. Brunkow and Ramsdell analysed the genetic structures of immune dysfunction and identified ⁸FOXP3.

The combination of each study confirmed that immune tolerance is sustained through active cellular regulation, not just autoreactive cells.

From 1993 to 1996, Sakaguchi conducted experiments on mice, where the removal of CD25⁺ T cells in mice led to a severe form of systemic autoimmune disease, providing direct evidence of a suppressive subset maintaining the peripheral immune tolerance. He named these cells 'T-reg's' and demonstrated their ability to control the autoreactive

The experiment that inspired Sakaguchi

1 Sakaguchi removed the thymus from three-day-old mice. These mice then developed autoimmune diseases.



Sakaguchi's experiment that led to the discovery of T-reg's

1. The process, outside the thymus and bone marrow, that stops cells from targeting the host.
2. Cells that inhibit detrimental immune reactions to preserve self-tolerance.
3. Process where the body maintains stable internal conditions (Temperature, Glucose concentration, CO₂ & O₂).
4. A microorganism that causes a disease in plants and/or animals.
5. The immune structure in which T cells are trained to differentiate the body's own cells from external ones.
6. Category of T cell responsible for managing and regulating reactions by stimulating other immune cells.
7. Protein receptor (interleukin-2 receptor alpha chain) found on activated T cells and highly expressed on regulatory T cells.
8. Transcription factor essential for regulatory T cell development.
9. A cytokine, with anti-inflammatory properties, that restricts immune reactions.
10. The manner in which an illness originates and advances within the body.
11. Small proteins that act as signaling molecules to regulate the immune system.
12. The process by which a disease or disorder develops.
13. Regulatory T cells are genetically modified to target specific tissues and induce immune tolerance, without global immune system suppression.

effector T cells.

In contrast to T lymphocytes, which trigger immune reactions, T-reg's suppress inflammation, like ⁹interleukin-10 and transforming growth ¹⁰factor-beta, by means of ¹¹cytokines.

He demonstrated that the immune system's tolerance was not solely a passive process that took place automatically, but relied on an active cellular process. This discovery changed both the theory and understanding of immunology, clarifying why problems in regulation might result in conditions like Rheumatoid

arthritis, multiple sclerosis, and type I diabetes.

Brunkow and Ramsdell also conducted experiments and studies based on the mouse model, in which they had isolated FOXP3 gene mutations, revealing it to be a regulatory transcription factor that programs the development and function of T-reg's. Further clinical studies confirmed that mutations in FOXP3 caused the absence or dysfunction of T-reg's, leading to fatal autoimmunity in the infancy phase.

Ramsdell established that FOXP3 is both necessary and sufficient for

"The power of the immune system is a double-edged sword." ~ Dr WE Paul

T-reg identity. When FOXP3 was artificially conveyed in non-T-regs, they developed suppressive properties – demonstrating its central role as a lineage-defining transcription factor.

The biology behind T-regs is now a foundational principle in understanding immune-mediated diseases. Their dysfunction explains the ¹²pathogenesis of autoimmune disorders, chronic inflammatory diseases, and transplant rejection. The current expansion of T-regs is being explored as a treatment for the following conditions: Crohn's disease, multiple sclerosis, and diabetes.

In cancer, T-regs inhibit anti-tumor properties, enabling cancer cells to evade immune surveillance. This led to the development of selectively suppressing T-regs in the tumor environment to manipulate T-reg numbers – this is to promote immune tolerance in reversing autoimmunity and transplantation.

These discoveries unlocked a new era of immune engineering. New, future-focused therapies include ¹³CAR-T-reg cell therapy. Ongoing research dives into the creation of FOXP3-based gene therapy to treat hereditary autoimmune disorders. The controlled modulation of T-reg

activity is being investigated as a strategy for organ transplantation, potentially reducing or eliminating the need for lifelong immunosuppressants.

M. Brunkow et al. provided the cellular, genetic, and molecular framework explaining how the immune system maintains tolerance to its own tissue, while also retaining the capacity to defend against disease. Their discoveries on regulatory T cells and the FOXP3 gene/gene mutation not only answered long-standing questions in immunology but also created entirely new fields of research and clinical innovation.

Internet Outages and their Surprising Consequences

Charl Steenkamp

As vast portions of the digital world flickered out of reach in early December, the sudden quiet underscored an unsettling truth: an infrastructure once conceived as diffuse and distributed has grown precariously dependent on a handful of central pillars. When those pillars fail, the illusion of a decentralised internet is swiftly dispelled.

On 5 December 2025, a major Cloudflare disruption plunged nearly a third of global web traffic into silence. For close to half an hour, countless sites fell dark as a routine configuration change — intended to address a security concern — triggered a cascading malfunction. Essential pathways that ordinarily route and safeguard data were abruptly severed, leaving even the most heavily trafficked services inaccessible. Less than a month earlier, on 18 November, another Cloudflare malfunction had swept across the digital landscape, this time rooted in a flaw deep within automated filtering systems. That incident persisted for several hours and demonstrated how a single fault nested in a ubiquitous reverse proxy layer can ripple through millions of connections.

A comparable upheaval struck weeks before these events, when Amazon Web Services experienced a severe outage on 20 October 2025. What began as an internal systems failure within one of the world's most relied-upon cloud computing regions spread rapidly outward, interrupting everything from banking interfaces to logistics platforms. Businesses that depend on AWS for server infrastructure saw operations suspended for much of the day. Though these systems are marketed as resilient and regionally redundant, the outage revealed the extent to which critical services — financial, commercial, and civic — now depend on a concentrated few.

Taken together, these incidents recount a pattern rather than a coincidence. The internet's early architecture relied on diversity: countless independent networks interlinking to form a robust mesh. Increasingly, however, traffic is funneled through a narrow band of corporate intermediaries. When a single organisation underpins authentication, routing, caching, or protection for vast segments of the internet, its internal missteps carry global

consequences.

The effects of such internet outages reach farther than merely disrupting your internet browsing experience, however. During recent outages, airport check-in systems stalled, commercial payment networks faltered, and communication lines across public and private institutions became unreliable. What might once have been isolated turbulence now manifests as widespread operational paralysis. The interconnected machinery of modern life — travel, commerce, public services — depends on uninterrupted digital pathways, and when those pathways converge through just a few providers, a single error can darken sectors far removed from the original fault.

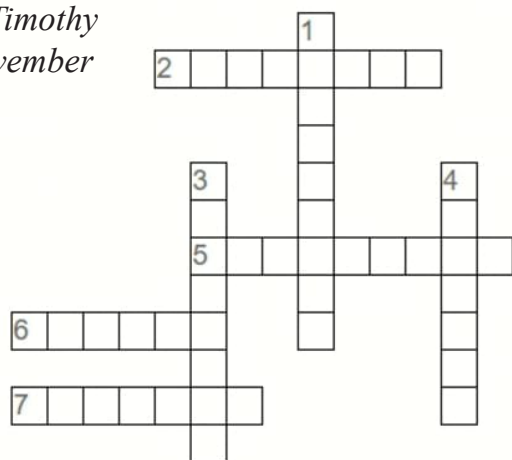
These episodes serve as a reminder that centralisation, even when efficient, erodes the resilience that once defined the internet. As reliance intensifies, so too does the cost of a single failure.

How do services like Cloudflare work?

They run on servers and act as global traffic managers and security layers, ensuring that websites load quickly, stay online, and resist attacks. Servers are computers designed to provide services and information over a network.

CROSSWORD

by Timothy
November



Across

2. To where did Andro and Matthew venture?
5. The group that uses 6-7 the most (e.g. adults).
6. Computers that are designed to provide services and information to other devices over a network.
7. Matthew played the first movement of a piece composed by which French composer? (Surname only)

Down

1. Andro played an electrifying rendition of Vivaldi's ... concerto.
2. The global network of billions of computers and other electronic devices.
3. The music style Andro played in (e.g. Classical).

“6-7”

Timothy November

The phrase “6-7” has become one of the biggest Gen Z trends of 2025. It first appeared in the song Doot Doot (6 7) by the rapper, Skrilla, and spread through TikTok edits, memes, and short clips. Teenagers around the world now use it as a playful, mysterious expression with no single definition.

Some say it refers to LaMelo Ball, who stands 6 feet, 7 inches tall, while others think it's linked to 67th Street in Chicago or Philadelphia, places associated with Skrilla. A few interpret it as “so-so”, like rating something a 6 or 7 out of 10, but

most agree it doesn't really mean anything at all.

According to linguists and dictionary sites, “6-7” is deliberately nonsensical. Its power lies in the randomness – it's used to make people laugh and to confuse adults. Whether shouted during a conversation or paired with its signature hand gesture, it's more about vibe than message.

6-7 captures Gen Z's humour: ironic, viral, and meaningless on purpose. Its chaos is the point and that's exactly why it works.

Word Search

V	C	V	V	U	D	G	H	Z	B	L	U	E	D	N	E	T	E	I	G	L	M	S
U	F	W	U	I	S	K	P	E	F	J	Q	I	O	M	N	N	S	A	D	N	X	T
X	Y	S	A	A	M	L	A	G	O	O	M	B	L	I	K	K	E	J	G	Z	J	N
S	Y	M	K	Z	U	O	Y	S	R	D	Q	Z	G	F	V	E	N	Z	N	Z	N	A
M	K	W	R	R	H	G	K	J	L	J	K	B	D	A	W	H	R	Q	T	L	O	M
U	M	H	F	I	L	S	E	I	S	A	T	S	E	R	P	T	E	I	K	S	T	E
F	V	W	U	W	I	O	E	D	R	X	T	C	D	R	A	N	Y	R	N	E	E	I
T	S	I	H	Q	M	Y	B	O	I	S	H	A	A	I	E	R	Q	C	B	H	D	S
Y	X	O	Z	K	W	R	E	I	V	A	L	K	K	E	R	T	J	F	F	L	N	I
D	V	D	V	H	P	X	A	J	O	N	Q	V	C	V	G	C	N	C	E	M	I	L
R	P	T	Z	Y	O	Z	T	T	N	M	Y	D	O	N	X	H	R	T	U	I	S	O
V	E	R	K	E	E	R	S	K	O	N	S	T	A	B	E	L	K	Q	B	J	I	P
H	X	A	K	A	D	E	M	I	E	S	I	N	G	E	S	T	E	L	D	E	L	N
C	T	I	E	T	I	L	A	T	N	E	M	D	Y	W	N	Z	V	U	O	O	O	X
L	W	L	L	R	G	D	P	G	J	S	B	N	Y	W	X	O	H	Q	O	W	P	B
N	Q	M	R	D	S	V	S	T	E	L	L	E	N	B	O	S	C	H	N	T	A	G

Soek die volgende woorde:

AKADEMIESINGESTELDE
VERKEERSKONSTABEL
SAAMLAGOOMBLIKKE
SKIETPRESTASIES
STELLENBOSCH
POLISINDETON
TREKKLAVIER
MENTALITEIT
POLISIEMAN
BOISHAAIER
GIETENDE
RYNARD
MUFTYD

There is a prize for the first person to submit their correctly completed crossword and word search next year in Mrs De Wet's class!