

BOOK 2

GENOME

ADVENTURES

CRACKING THE CODE: KITSO EXPLORES DNA & GENES



concept by ABRAHAM MAMELA

illustrated by ALBERT LEKGABA

FOREWORD



Science communication is a priority in Botswana's educational landscape. Beyond schools and colleges, the Ministry of Education and Skills Development has been at the forefront in taking measures to improve the appreciation of science by the general public. This is attested by the broadcast content aired in our national broadcasting media led by the Ministry of Education and Skills Development. Our efforts in this regard are consistent with a key pillar of vision 2016, namely, an informed and educated nation. This ambitious vision cannot be achieved without the cooperation of all stakeholders.

It is with the greatest delight to learn that the Botswana-Baylor Children's Clinical Centre of Excellence (COE), in trying to fulfill the goals of the Collaborative African Genomics Network (CAfGEN), is already contributing to this course through its flagship community engagement project - *Genome Adventures*. Funded jointly by Wellcome Trust and the US National Institutes of Health, *Genome Adventures* is presented in four comic books that seek to communicate and engage Botswana and other African countries on issues of science with a special focus on biomedical research.

In the first book entitled "Blast to the past" *Kitso* - the young hero of the book series explores heredity and genetics. In this, the second book, entitled "Cracking the code" *Kitso* with the assistance of several superheroes shrinks to microscopic size to explore how DNA and the genes affect the human body and its functions. Presented in a pictorial and entertaining way using simple language, this book can be enjoyed by all - young and old, less and more educated. I urge all learners to pay attention to the story and compare it to the content from their biology books for their benefit.

Aware that genetics is one of those topics that can be challenging to understand, I am happy to endorse and recommend *Genome Adventure Book Two* as an opportunity to our students and communities to learn genetics in an easy and more exciting style that combines story-telling comics and analogies to engage and educate its readers.

Significantly, the book features female scientists - an encouragement for our girl children to aspire to take science as a career. This is notable as Botswana is a signatory to the Southern African Development Community Science and Technology Protocol that requires members to close the numerical gap between female and male scientists.

I am informed that *Genome Adventures Comic Books* will be translated into Setswana, Luganda, Swahili, Hausa, Arabic, French, Portuguese and featured in various social media in order to reach as many African People as possible.

On behalf of Botswana, and indeed all Africans, I take this opportunity to thank all those who are involved in bringing this project to fruition and to the Wellcome Trust and National Institutes of Health for providing funding support. We at the Botswana Ministry of Education and Skills Development we are happy to *crack the code with Kitso*. I invite you all to join.

A stylized signature in black ink, likely belonging to Honourable Dr. Unity Dow.

Honourable Dr Unity Dow
Minister of Education and Skills Development
Republic of Botswana

KITSO



HII MY NAME IS KITSO! I LIVE IN TLOKWENG WITH MY AUNT. I LOVE ADVENTURES! I WAS BORN WITH HIV, BUT THAT DOESN'T SLOW ME DOWN!

DR. MABOKO



I AM THE LEADER OF THE GENOME ADVENTURES SQUAD (NO MATTER WHAT KGOSIGADI TELLS YOU!). I HAVE AMAZING POWERS TO GO THROUGH WALLS AND TELEPORT WITH MY SCOOTER. AND THAT'S NOT ALL - I AM A MIND READER, TOO!

KGOSIGADI



I AM AN OUTSPOKEN LADY AND A TRUE LEADER OF MY PEOPLE, THE BATSWANAI. I MIGHT LOOK LIKE YOUR AVERAGE GRANDMOTHER, BUT MY WALKING STICK CONTAINS SPECIAL POWERS FROM MY ANCESTORS! WITH THESE POWERS, I CAN CONTROL THE WEATHER, DIRECT ANIMALS, AND DO OTHER AMAZING THINGS!

PHODISO

MY NAME IS PHODISO, BUT YOU CAN CALL ME "AUNTY". I ADOPTED MY SISTER'S CHILD, KITSO, AFTER SHE PASSED, BUT I LOVE KITSO THE SAME AS MY OTHER CHILDREN! WE LIVE TOGETHER IN TLOKWENG, JUST OUTSIDE GABORONE - WE MIGHT EVEN BE YOUR NEIGHBOURS!



XGAO-TCGAI

TCGAI! MY NAME IS XGAO-TCGAI (OR "XT" FOR SHORT). I'M A PROUD SAN MAN - SOME PEOPLE CALL MY PEOPLE "BUSHMEN" OR "BASARWA". I'M ALSO A SUPERHERO WITH TIME-TRAVELLING POWERS! MY NAME LITERALLY MEANS "BLADE-VISION" BECAUSE MY SIGHT IS AS SHARP AS A KNIFE AND I CAN EVEN SEE INTO THE FUTURE!



MARANYANE

JUST LIKE MY NAME, MARANYANE, I LOVE TECHNOLOGY. CHECK OUT MY BODY! PART OF IT IS A MACHINE AND THE OTHER PART IS HUMAN. I AM SUPER-SMART AND I LOVE USING THE LATEST GADGETS!



MMATLI

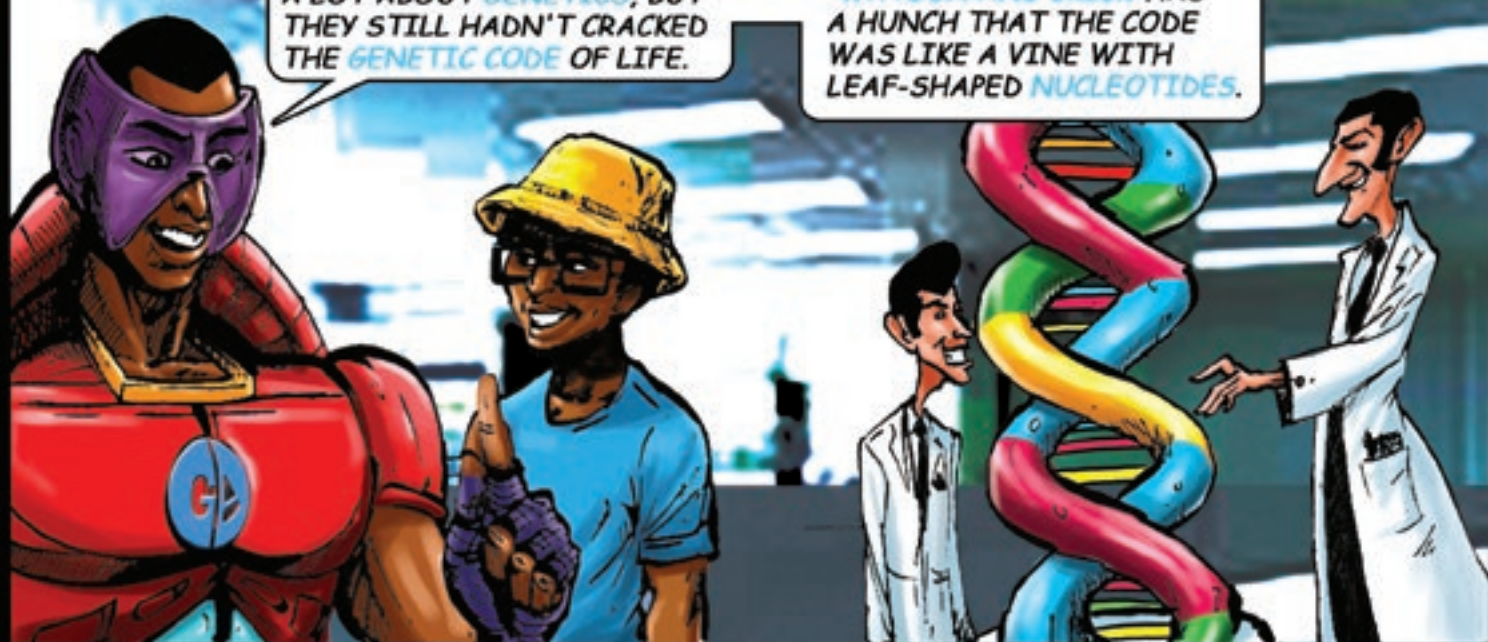
MY NAME IS MMATLI. I AM A RESEARCHER! I ALSO HAVE SUPERPOWERS TO SHRINK THINGS TO MICROSCOPIC SIZE, INCLUDING HUMANS! I LOVE THE AMAZING THINGS THAT SCIENCE HELPS US DISCOVER AND I WOULD LOVE TO SEE MORE YOUNG GIRLS IN BOTSWANA BECOME SCIENTISTS, JUST LIKE ME!



MEANWHILE... BACK IN THE CAVENDISH LABORATORY
AT THE UNIVERSITY OF CAMBRIDGE.

SO, KITSO, BY THE 1950s,
SCIENTISTS HAD DISCOVERED
A LOT ABOUT **GENETICS**, BUT
THEY STILL HADN'T CRACKED
THE **GENETIC CODE** OF LIFE.

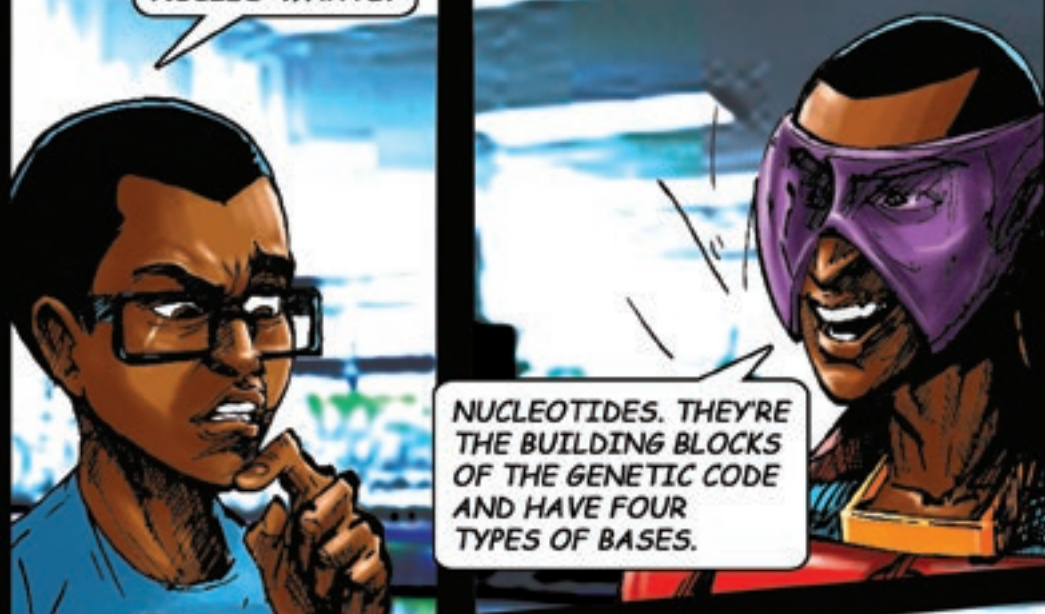
THOSE DUDES OVER THERE
-**WATSON AND CRICK**-HAD
A HUNCH THAT THE CODE
WAS LIKE A VINE WITH
LEAF-SHAPED **NUCLEOTIDES**.



NUCLEO-WHATS?



NUCLEOTIDES. THEY'RE
THE BUILDING BLOCKS
OF THE GENETIC CODE
AND HAVE FOUR
TYPES OF BASES.

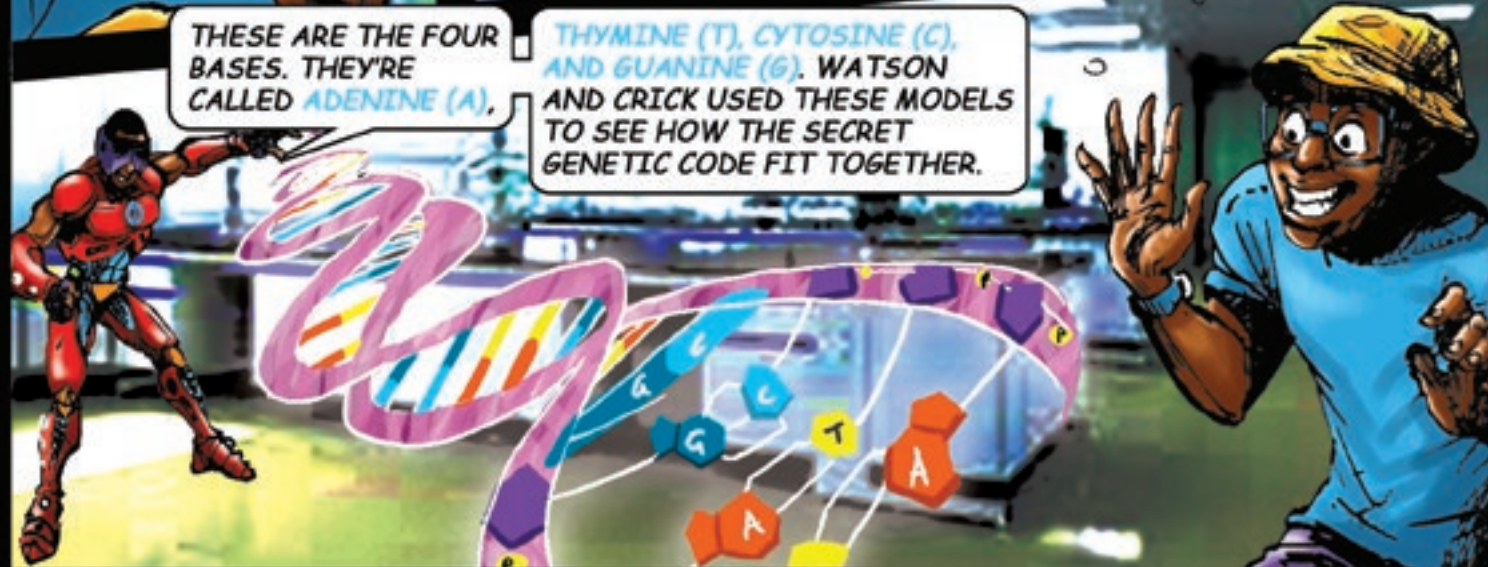


WHY ARE THOSE
SHAPES LABELED
A, T, C, AND G?



THESE ARE THE FOUR
BASES. THEY'RE
CALLED **ADENINE (A)**,

THYMINE (T), **CYTOSINE (C)**,
AND **GUANINE (G)**. **WATSON**
AND **CRICK** USED THESE MODELS
TO SEE HOW THE SECRET
GENETIC CODE FIT TOGETHER.



IS THAT IT? IS THAT THE SECRET CODE? IT LOOKS LIKE A TWISTED LADDER.

THAT'S CALLED **DEOXYRIBONUCLEIC ACID**, OR **DNA** FOR SHORT, AND ITS BEAUTIFUL SHAPE IS CALLED A **DOUBLE HELIX**!

TWO STRANDS OF NUCLEOTIDES TWIST AROUND EACH OTHER, AND EVERY BASE FROM THE FIRST STRAND PAIRS WITH ONE FROM THE SECOND STRAND.

IT'S SO... PRETTY.

A PAIRS WITH T AND C PAIRS WITH G. PRETTY COOL, RIGHT?

HEY, SO WHO IS THAT LADY, AND WHAT IS SHE HOLDING?

WATSON AND CRICK CAN'T TAKE ALL THE CREDIT FOR THE DISCOVERY OF DNA. DON'T YOU KNOW THAT MEN AREN'T THE ONLY ONES WHO CAN BE SCIENTISTS?!

THAT'S MY SISTER-SCIENTIST **ROSALIN FRANKLIN**, AND SHE'S HOLDING AN **X-RAY DIFFRACTION PHOTO** OF DNA THAT SHE TOOK.

IF YOU LOOK CLOSELY, YOU CAN MAKE OUT THE SHAPE OF THE DOUBLE HELIX.



SO A LADY DISCOVERED
THE SHAPE OF DNA?

THESE PHOTOS WERE
PIVOTAL IN THE DISCOVERY
OF DNA, SO I'LL LET YOU BE
THE JUDGE, KITSO.

NOW, LET'S GO BACK HOME.

BUT I STILL DON'T GET IT.
XT SAID THAT THE SECRET
CODE IS INSIDE EVERYONE.
DOES THAT MEAN THAT I
HAVE A FUNNY SHAPED
LADDER INSIDE OF ME?

LET'S FIND OUT, SHALL
WE? SUPERHERO HUDDLE!

KITSO, OUR ADVENTURE
IS FAR FROM OVER.

YOU ARE GOING
TO LEARN SO
MUCH!

WE'VE GOT A PLAN.

WHAT'S THE PLAN?

OKAY, SO WHAT'S
THE PLAN?

THIS IS THE MOMENT
YOU'VE BEEN WAITING
FOR, LITTLE YOUNG KITSO.

BUT YOU STILL
HAVEN'T TOLD ME
THE PLAN! WHAT'S
THE PLAN?!

IT'S TIME TO SEE
WHAT GOES ON IN
A REAL HUMAN BODY.
TO SEE THE GENETIC
CODE WITH YOUR OWN
EYES.

WAIT ... YOU DON'T MEAN ...

THAT'S RIGHT.

WE'RE GOING TO
SEND YOU INTO YOUR
BABY COUSIN TUMO'S
BLOODSTREAM.

TIME TO SHRINK
DOWN A SIZE OR
TWO, KITSO.

SHRINK? WOAH,
WAIT A SECOND.

YOU CAN'T VERY WELL
SEE THE GENETIC CODE
LOOKING LIKE THIS,
CAN YOU?

WELL, NO...

AND YOU WANT
TO SEE THE CODE,
DON'T YOU?

WELL, YEAH...

OF COURSE HE DOES!
TRUST ME, MELAITI,
IT'S PERFECTLY SAFE.
WE'LL WALK YOU
THROUGH EVERY STEP
OF THE WAY. HERE,
TAKE THIS.

WE'LL BE ABLE TO
COMMUNICATE USING
THIS. TESTING, TESTING,
1-2-3. CAN YOU HEAR ME?

YEAH, AND SEE YOU.

GREAT! SO... WHAT
DO YOU SAY? READY
FOR ANOTHER
ADVENTURE?

OKAY, LET'S DO THIS!

HOLD ON TIGHT!

PIZZZ!

SHHHHZZZZ!

BLING!

29:55s

KITSO, CAN YOU
HEAR US?

GUYS? WHERE AM I?

ACCORDING TO MY
GPS MAP, IT LOOKS
LIKE YOU'RE IN A
BLOOD VESSEL.

SWOOOSH!!!

WOAH!

IT'S LIKE RUSH HOUR
TRAFFIC IN HERE!

YOU'RE IN THE BLOOD
STREAM. BLOOD CELLS
TRAVEL RAPIDLY FROM
ONE PART OF THE BODY
TO THE OTHER TO
PERFORM THEIR SPECIFIC
FUNCTIONS.

WANT TO EXPLORE
ONE OF THEM?

WHAT ABOUT THAT ONE?
THAT ONE LOOKS COOL!

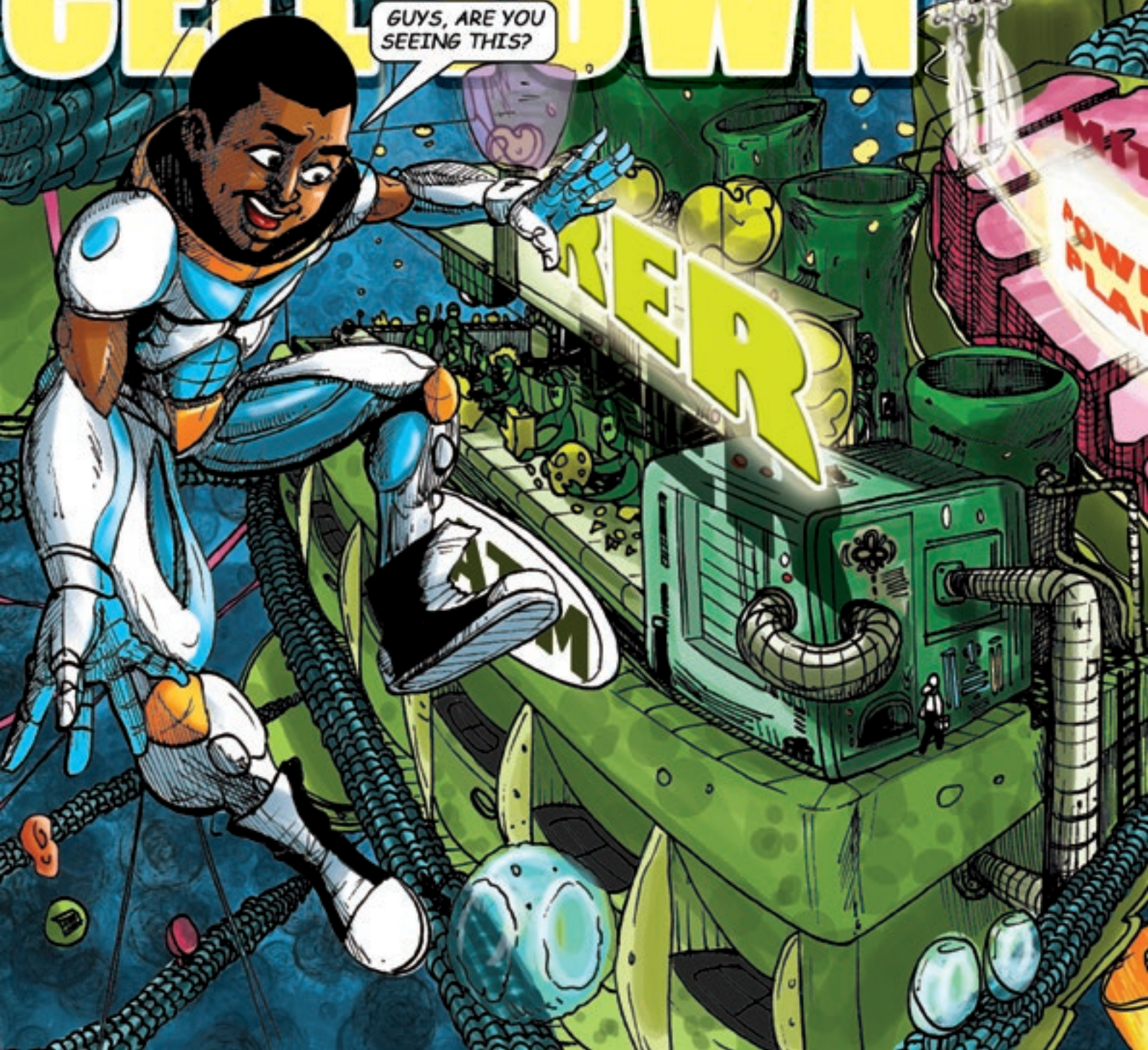
COOL! LET'S DO IT.

THAT'S A LYMPHOCYTE,
A TYPE OF WHITE BLOOD
CELL. GOOD CHOICE.

WOAH!

CELL TOWN

GUYS, ARE YOU
SEEING THIS?



NUCLEUS

28:23s

GUYS? HELLO?



**LYSOSOME
RECYCLING
PLANT**

MITOCHONDRIA

**GOLGI
MAIL CENTER**

CENTRI

HUH, I WONDER WHAT'S WRONG.



AT THE **6061** MAIL CENTER...

25:47.5

25:46.5

ARE YOU KITSO?



I'VE GOT A LETTER FOR YOU.



FOR ME?



IT'S FROM THE SUPERHEROES!



DEAR KITSO,

WELCOME TO CELL-TOWN! AS YOU CAN SEE, IT'S QUITE A BUSY PLACE. YOU ARE CURRENTLY IN THE **CYTOSOL** OF THE **CELL**, AND EACH BUILDING IS AN **ORGANELLE**. EVERY ORGANELLE HAS A UNIQUE FUNCTION TO KEEP THE CELL RUNNING SMOOTHLY.

UNFORTUNATELY, YOU'RE GOING TO HAVE TO EXPLORE THE REST ON YOUR OWN FOR NOW. THE **CELL MEMBRANE** IS INTERFERING WITH OUR TRANSMISSION SIGNAL, SO WE CAN'T REACH YOU ON THE WATCH. DON'T WORRY! WE'RE WORKING ON A STRONGER SIGNAL. FOR NOW, USE WHAT YOU'VE LEARNED TO FIND A WAY OUT OF THERE. WE'LL KEEP TRYING TO GET IN TOUCH.

GOOD LUCK,

YOUR GENOME ADVENTURE CREW

BAD NEWS?

I'VE GOT TO FIND
A WAY OUT OF HERE.
BUT I DON'T EVEN
KNOW WHERE TO
BEGIN!

21:45s

DON'T WORRY, KID.
ALL YOU HAVE TO
DO IS GET A TICKET.

YOU SEE THOSE
RIBOSOMES OVER
THERE? YOU CAN FIND
A TICKET THERE.

THANKS, MR. MAILMAN!

AHA! MY TICKET! NOW HOW
AM I SUPPOSED TO GET IT
OUT OF THERE?

YOU JUST HAVE TO
PUNCH IN THE RIGHT
CODE.

DO YOU KNOW THE
CODE FOR THE EXIT
TICKET?

NOPE. BUT YOU
CAN FIND OUT
WHAT IT IS.

AT THE LIBRARY,
OF COURSE!

THE LIBRARY?

YEP, THE HOUSE OF
KNOWLEDGE, THE
BIG BRAIN, COMMAND
CENTRAL, OTHERWISE
KNOWN AS THE **NUCLEUS**.

IT'S FULL OF
IMPORTANT
INFORMATION
AND WONDERFUL
STORIES. IN FACT,
IT'S PROBABLY THE
MOST IMPORTANT
BUILDING IN ALL
OF CELL-TOWN!

GOOD LUCK!
I'VE GOT TO
GET BACK
TO WORK!

WOW, I SHOULD GO
TO THE LIBRARY MORE
OFTEN. THANKS!

17:53s



15:34s



MAY I HELP YOU?

I'M LOOKING FOR THE
CODE TO GET AN EXIT
TICKET.

THAT'S IN THE MAIN
STACKS UPSTAIRS.
CHECK GENE 2.67.
JUST FOLLOW THE
NUMBERS.

13:06s



OH, SORRY. HEY,
HAVE YOU EVER
NOTICED THAT
ALL THESE BOOK
SHELVES LOOK LIKE
DNA?



WOW!

SHHH! I'M TRYING
TO READ.



OF COURSE THEY
DO, SILLY. THE
NUCLEUS HOUSES
YOUR DNA. ALL
THAT DNA IS
COLLECTIVELY
CALLED YOUR
GENOME.
YOU'RE NEW HERE,
HUH?

YEAH.

OH MAN, HOW AM I EVER GOING TO FIND THE CODE FOR GENE 2.67?

IT'S EASIER THAN YOU THINK! THERE ARE THOUSANDS OF GENES IN THE NUCLEUS, TRUE, BUT EACH STRAND IS ORGANIZED INTO 46 STAIR CASES,

23 FROM EACH PARENT, CALLED CHROMOSOMES. SEE IF YOU CAN FIND STAIRCASE 2 AND FOLLOW THE NUMBERS TO GENE 2.67.

THERE IT IS!

GOOD, NOW FIND THE BOOK FOR GENE 2.67.

WAIT! THIS CODE IS MADE UP OF THE SAME LETTERS THAT WATSON AND CRICK HAD BACK WHEN THEY DISCOVERED DNA--A,T,C,G!

10:00₅

GOOD OBSERVATION! AS YOU CAN SEE, THE CODE REALLY DOES COME DOWN TO 4 SIMPLE LETTERS.

SO ... ALL I HAVE TO DO IS BRING THIS BOOK BACK TO THE RIBOSOMES, ENTER THE CODE, AND CLAIM MY TICKET HOME.

THANKS SO MUCH, KE A LEBOGA!

EXCUSE ME, NGWANAKA. YOU CAN'T TAKE BOOKS OUT OF THE LIBRARY.

BUT I NEED THIS CODE TO GET HOME!

YOU MAY MAKE PHOTOCOPIES OVER THERE.

07:58₅

WAIT! WHY ARE THERE ALL THESE U'S AND NO T'S? IS THE MACHINE BROKEN? JUST MY LUCK!



WHEN YOU MAKE COPIES HERE, ALL OF THE T'S ARE REPLACED WITH U'S. U STANDS FOR URACIL - AND IT'S A MUCH BETTER MESSENGER THAN THIAMINE.



EISH! THANK YOU, MMA. YOU'RE A LIFE SAVER!



TAKE CARE NOW!



KITSO, I REPEAT, IF YOU CAN HEAR US, PLEASE INDICATE THAT YOU ARE OKAY!



05:51s

RELAX, GUYS. I'M FINE. YOU WOULDN'T BELIEVE THE ADVENTURE I'VE HAD! CHECK THIS OUT.



YOU'VE DISCOVERED THE PROCESS OF TRANSCRIPTION. WELL DONE!



IT WAS EASY! I JUST MADE COPIES OF THE DNA CODE.



AND THOSE COPIES ARE CALLED RNA.



NOW ALL I HAVE TO DO IS TAKE THIS CODE TO THE RIBOSOMES.

EXACTLY! BY ENTERING THE RNA CODE YOU TRANSCRIBED, THE RIBOSOME WILL COMPLETE THE PROCESS OF TRANSLATION...



AND PRODUCE THE PROTEIN, THE TICKET YOU WILL NEED TO LEAVE THE CELL!



WAY TO GO, KITSO!



04:14s



I'LL ACTUALLY BE KIND OF SAD TO LEAVE THIS PLACE.



IT'S REALLY COOL, ESPECIALLY THE LIBRARY, ERR... NUCLEUS.



YOU SHOULD CHECK OUT YOUR LOCAL LIBRARY WHEN YOU GET BACK HOME.



WAIT, THIS ISN'T MY TICKET HOME! WHAT HAPPENED?



OH NO, YOU MAY HAVE CREATED A MUTATED RNA CODE WHEN YOU WERE PHOTOCOPYING.

A **MUTATION** IS A CHANGE IN THE CODE; AN ADDITION, A DELETION, OR A RE-ARRANGEMENT, RESULTING IN A TOTALLY DIFFERENT **PROTEIN** PRODUCT.

YOU PROBABLY HAVE A PAGE MISSING! YOU'LL NEED TO GO BACK TO THE LIBRARY TO FIND IT.



IS THIS YOURS?



THANK YOU, **MMA**. YOU'RE A...



LIFE-SAVER? I KNOW.



CONGRATULATIONS, KITSO. YOU'VE DONE IT! HEAD OVER TO THE TRANSPORT **VESICLE** STATION.



THE FOLKS OVER THERE WILL HELP YOU GET HOME.



KITSO! YOU GOT YOUR TICKET! HERE'S YOUR RIDE.

EE, RRA.

02:22s

01:53s



01:18s



YOU MADE IT, KITSO!
YOU SHOULD BE PROUD
OF YOURSELF. ARE YOU
READY TO LEAVE THE
HUMAN BODY AND COME
HOME?

I'VE HAD A BLAST,
BUT I THINK I'M
DONE WITH
ADVENTURES FOR
NOW...

THAT'S A WEIRD
LOOKING CELL!
LOOKS LIKE A
BANANA!



UH-OH! WATCH
OUT!



COULD THIS BE WHAT
I THINK IT IS?

00:05s



WHAT ARE THE WEIRD BANANA-SHAPED CELLS?
WILL KITSO MAKE IT OUT ALIVE? WILL HE EVER
RETURN TO NORMAL SIZE? STAY TUNED FOR PART
THREE OF THE GENOME ADVENTURES COMIC BOOK
SERIES TO FIND OUT!

GLOSSARY

SCIENTIFIC TERMS

BASE – A BUILDING BLOCK OF DNA. THE FOUR BASES ARE ADENINE, GUANINE, THYMINE, CYTOSINE.

CELL MEMBRANE – A THIN, BIOLOGICAL MEMBRANE THAT SEPARATES THE CONTENTS OF CELLS FROM THE EXTERNAL ENVIRONMENT.

CHROMOSOMES – LINEAR STRANDS OF DNA FOUND IN THE NUCLEUS OF MOST LIVING CELLS, CARRYING GENETIC INFORMATION IN THE FORM OF GENES.

CYTOPLASM – THE JELLY-LIKE FLUID THAT FILLS EACH CELL AND IS ENCLOSED BY THE CELL MEMBRANE.

DNA – DEOXYRIBONUCLEIC ACID; THE MOLECULE THAT CARRIES MOST OF THE INSTRUCTIONS THAT ARE REQUIRED FOR THE DEVELOPMENT AND FUNCTIONING OF LIVING ORGANISMS.

NUCLEOTIDES – THE BUILDING BLOCKS OF THE NUCLEIC ACIDS, DNA AND RNA.

GENOME – ALL THE DNA CONTAINED IN THE CHROMOSOMES OF AN ORGANISM COLLECTIVELY IS CALLED THE GENOME.

GOLGI – AN ORGANELLE, CONSISTING OF A STACK OF FLATTENED SACS, THAT IS INVOLVED IN THE MODIFICATION AND SORTING OF PROTEINS.

HELIX – A COILED STRUCTURE OF DNA CONSISTING OF COMPLEMENTARY STRANDS OF DNA LINKED TOGETHER BY HYDROGEN BONDS.

LYMPHOCYTES – A TYPE OF WHITE BLOOD CELLS WHICH PLAY AN IMPORTANT ROLE IN OUR IMMUNE SYSTEMS.

MUTATION – A CHANGE IN THE DNA CODE, AN ADDITION, A DELETION, OR A SUBSTITUTION RESULTING IN A DIFFERENT PROTEIN BEING PRODUCED.

NUCLEUS – AN ORGANELLE SURROUNDED BY A DOUBLE MEMBRANE, FOUND IN MOST LIVING CELLS, THAT CONTAINS GENETIC MATERIAL IN THE FORM OF DNA MOLECULES.

ORGANELLE – ONE OF SEVERAL MEMBRANE-BOUND COMPARTMENTS WITH SPECIALIZED FUNCTIONS, THAT ARE PRESENT IN THE CELL CYTOPLASM.

PROTEINS – MOLECULES COMPOSED OF ONE OR MORE CHAINS OF AMINO ACIDS. THE ORDER OF AMINO ACIDS IS DETERMINED BY THE SEQUENCE OF THE NUCLEOTIDES IN THE DNA CODING FOR THE PROTEIN.

RIBOSOMES – COMPLEX MACHINERY FOUND WITHIN ALL LIVING CELLS THAT ARE THE SITES OF PROTEIN MANUFACTURE.

RNA – RIBONUCLEIC ACID; A NUCLEIC ACID PRESENT IN ALL LIVING CELLS AND MANY VIRUSES, THAT IS INVOLVED IN PROTEIN SYNTHESIS.

TRANSCRIPTION – A PROCESS INVOLVED IN THE SYNTHESIS OF PROTEINS WHERE A DNA TEMPLATE IS USED TO MAKE RNA.

TRANSLATION – THE PROCESS IN WHICH PROTEINS ARE CREATED AT RIBOSOMES.

VESICLE - A MEMBRANE BOUND SAC IN PLANT OR ANIMAL CELLS THAT IS INVOLVED IN STORAGE OR TRANSPORT OF THE PRODUCTS OF METABOLISM.

X-RAY CRYSTALLOGRAPHY – A TECHNIQUE USED TO IDENTIFY THE STRUCTURE OF CRYSTALS OR BIOLOGICAL MOLECULES SUCH AS DNA.

SETSWANA TERMS

NGWANAKA- MY CHILD

MELAITI- SLANG WORD FOUND AMONG YOUTHS IN BOTSWANA MEANING "MY MAN".

MMA- MADAM

KE A LEBOGA- THANK YOU

EE RRA- YES, SIR

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GENOME ADVENTURES

GENOME ADVENTURES IS AN INNOVATIVE WELLCOME TRUST-FUNDED COMMUNITY ENGAGEMENT INITIATIVE OF THE COLLABORATIVE AFRICAN GENOMICS NETWORK (CAFGEN). CAFGEN IS A MEMBER OF THE HUMAN HEREDITY AND HEALTH IN AFRICA CONSORTIUM (H3AFRICA) AND IS COORDINATED BY THE BOTSWANA-BAYLOR CHILDREN'S CLINICAL CENTRE OF EXCELLENCE (COE). GENOME ADVENTURES UTILIZES CAPACITY BUILDING WORKSHOPS, EDUCATIONAL COMICS, AND SOCIAL MEDIA TO ENGAGE COMMUNITY STAKEHOLDERS, MEDIA PRACTITIONERS, AND THE GENERAL PUBLIC - ESPECIALLY THE YOUTH - IN GENOMICS AND BIOMEDICAL RESEARCH. OUR GENOME ADVENTURES COMIC BOOK SERIES AIMS TO EDUCATE READERS ON THE HISTORY OF HEREDITY AND GENETICS, THE STRUCTURE AND FUNCTION OF DNA AND GENES, THE LINK BETWEEN GENOMICS AND HEALTH, AND THE PROCESS FOR ENROLLING IN A BIOMEDICAL OR GENOMICS RESEARCH STUDY, INCLUDING ETHICAL ISSUES PERTAINING TO INFORMED CONSENT, SAMPLE SHIPPING AND STORAGE, AND COMMUNITY ENGAGEMENT.

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