

SWAY

Science My WAY



BOOK CLUB

Science Your Way, Every Day!

Senior



BIOCHEMICAL
SOCIETY

SCIENCE MY WAY

Sparking curiosity,
Building thinkers,
Growing future
scientist.
SWAY!!!

Dear Reader,

Science My Way (SWAY) was founded on one simple belief: reading is not just a “literature” thing.

Reading should not be confined to novels or recommended texts in language classes. It is for everyone. In fact, in our everyday lives—whether consciously or unconsciously—we are constantly reading. We read signs, messages, data, instructions, and the world around us.

So if we are already reading without even realizing it, why not channel that ability into books that nourish the mind and broaden our perspective? Why not read in ways that deepen our understanding of the world and our place in it?

Too often, students approach science as a subject to pass rather than a way of life. They memorize definitions, learn formulas, and prepare for exams—yet struggle to see how those same definitions and formulas shape their daily experiences. It is common to hear the question, “What is the importance of all this?”

SWAY exists to answer that question. It helps learners discover how the scientists who came before us used those very formulas to transform the world into what it is today. Science is not just content in a textbook—it is a living, evolving story of curiosity, creativity, and impact.

A science book club creates a safe space for conversation, curiosity, imagination, and discovery. It allows learners to see science in people, in stories, in real-world problems—and in themselves.

This simplified guide was created as a starting point for anyone who desires to establish and run a book club. My hope is that through this booklet, science becomes less intimidating, more inclusive, and deeply engaging.

May your book club raise confident readers with bold curiosity and a passion for innovation.

Blessing Amuseh Joshua

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SWAY Book Club



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A GUIDE TO STARTING AND RUNNING A BOOK CLUB

WHAT IS A BOOK CLUB?

A book club is a small community of readers who meet either in person or virtually (online) to read and discuss books.

It is not a classroom, neither is it a lecture. It is more of a safe space that encourages participation, boost confidence and promotes critical thinking.

What is a Science book club?

A science book club is a community of readers who meet to discuss science themed books.

Science themed books are books that relate to concepts and people in STEM (Science, Technology, Engineering and Math) which could be fiction or non-fiction.

WHAT ARE THE AIMS OF A SCIENCE BOOK CLUB?

A Science Book club aims to:

1. Make science enjoyable
2. Build a reading culture and develop reading skills
3. Develop critical thinking
4. Expose students to more STEM careers
5. Inspire innovation

ACTIVITIES FOR A SCIENCE BOOK CLUB

The activities in a book club should not be limited to only reading, it should also involve activities like:

1. Guided discussions
2. Experiments
3. Presentations
4. Role model spotlight
5. Innovation challenge
6. Word games

The list cannot be exhausted, it could also include other creative activities that promote critical thinking in learners.

ROLE OF FACILITATORS IN A BOOK CLUB

The facilitators in a book club will be expected to do the following:

1. Encourage each member to use their words and participate in discussions
2. Ensure that book club meetings do not feel like lectures
3. Celebrate curiosity
4. Keep discussions respectful
5. Relate science concepts to real life situations
6. Encourage discretion among members, because “what happens in a book club, stays in the book club”
7. Encourage team work

CORE PRINCIPLES OF SCIENCE MY WAY BOOK CLUB

- Curiosity over competition
- Questions over memorization
- Inclusion over intimidation
- Discussion over silence
- Growth over perfection

What a book club meeting will be, should be based on the following factors:

1. The age range of members
2. The theme
3. The location

PRACTICAL ACTIVITY GUIDE FOR A SCIENCE MY WAY BOOK CLUB MEETING

1. Arrival / welcoming of members
2. Reading
3. Word game
4. Discussion
5. Experiment
6. Announcement and Next reading recommendations

BOOK CLUB GAMES

1. Book talk: this or that
 - FICTION OR NONFICTION
 - PAPER BACK OR HARD COVER
 - READ OR LISTENING
 - LIBRARY OR MOVIES
 - BORROW OR BUY BOOKS
 - READ IN SILENCE OR READ WITH MUSIC ON
 - BEST SELLING BOOKS OR HIDDEN GEMS
 - READ ON COUCH OR READ ON THE BED
 - READ A BOOK OR WATCH THE MOVIE
 - SNACK WHILE READING OR READ WITHOUT SNACKS
2. Word relay
3. Word drill
4. Word pronunciation game



SWAY BOOK CLUB OUTREACH



Venue: Glorious Missions Goningora, Kaduna

Average Age:13-16

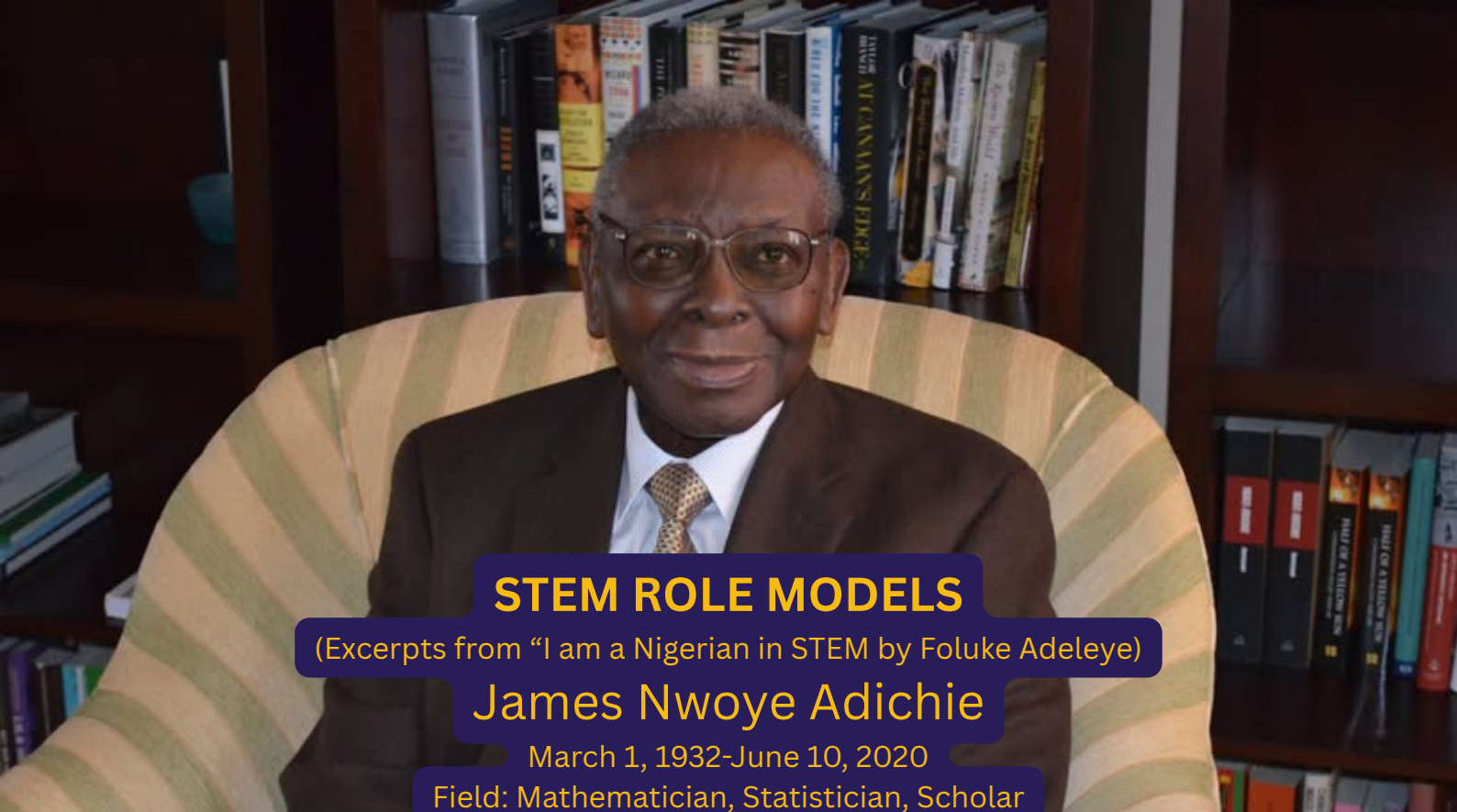
Day 1

- Introduction to Book club
- Simple Warm up activity/ game to explain the concept of density and up thrust
 1. Picking an orange from a jar of water without spilling it (to explain the concept of density and up thrust)
 2. Placing an egg in fresh water and salt water
- Book reading (from “I am a Nigerian in STEM by Foluke Adeleye)
- Book Discussion
- Word relay
- Book Distribution

Day 2

- Introduction
- Warm up game
 1. Word drill
 2. Word pronunciation game (How well can you pronounce your scientific words)
- Book reading
- Book discussion
- Meet a scientist
- DNA experiment
 3. DNA extraction from fruits
 4. DNA bracelets





STEM ROLE MODELS

(Excerpts from “I am a Nigerian in STEM by Foluke Adeleye)

James Nwoye Adichie

March 1, 1932-June 10, 2020

Field: Mathematician, Statistician, Scholar

How do you go from failing statistics to becoming your country’s first professor of statistics? By sheer determination, if you’re like James Nwoye Adiche. As a young boy, he excelled at arithmetic, to the admiration of his primary school teachers. He started his secondary education at African College, Onitsha, but had to leave after two years because his family could not afford his school fees. Despite that, James wrote the Junior Cambridge exam and passed it, a feat, considering that most people only wrote it after four or five years of college. This feat caught the Catholic Mission’s attention, and they sponsored James to learn woodwork and metal work at the Yaba Technical Institute, Lagos.

Despite receiving technical training, James wanted more from life so he studied for his senior Cambridge exam on his own, and he passed. He worked as a teacher and then as a sanitary inspector, but his real dream was to go to university. James had seen the power of resolve in his life, so of course, he continued studying on his own. In 1957, he resumed his studies for a bachelor’s degree in Mathematics at the University College, Ibadan. There he shone brightly graduating as one of the top three students in his class!

James worked briefly at the Central Bank of Nigeria (CBN) and the Office of Federal Statistics, but he did not quite enjoy working in either place. He applied to teach mathematics at the Nigeria College of Arts, Science and Technology, Enugu and a year later became an assistant lecturer at the University of Nigeria, Nsukka (UNN). There was just one catch! At his job at UNN, he was asked to teach not just math, his favorite subject, but also statistics, a subject he had never studied. He tried to learn statistics on his own but didn’t understand it. A year later, the university secured sponsorship for him to get a PHD in Statistics at the University of California, Berkeley, USA.



The expert mathematician resumed, wrote an initial exam in statistics, and scored zero in it. He was so dejected about it that he wanted to return home, however, with encouragement from a lecturer and with extra classes, he began to grasp the subject. He worked so hard he got his PhD in three years, becoming the second person to obtain a PhD in statistics from the University. James returned to Nigeria as the country's first PhD holder in Statistics, and he resumed his job at UNN.

In 1967, he temporarily left UNN when the Biafran war began and returned three years later. He had lost all his books in the war, but kind American colleagues sent him replacement books and bookshelves so he could start teaching again. James rose to become Nigeria's first professor of statistics in 1976. In 1978, he became the first Nigerian to be elected as a member of the International Statistical Institute (ISI).

For over 30 years, he taught at UNN, where he helped establish the department of statistics, serving as the first head. He also served as the dean of the faculty of physical sciences and, from 1980-1984, as the university's Deputy Vice-chancellor. James' contribution to Statistics and Mathematics extend beyond UNN. He often served as an external examiner for Mathematics and Statistics at various Nigerian Universities, supporting their faculties growth. Besides academic contributions, he was involved in the creation of the National Mathematics center (NMC) and served as a member of the national advisory council on statistics. James sure did a lot for the development of the study of Mathematics and Statistics in Nigeria. He was also a loving and attentive father to his six children, one of whom is Chimamanda Ngozi Adichie, a foremost Nigerian writer. James and Chimamanda had a close, loving relationship. His legacy lives on through his work, the institutions he helped build and his children.

DISCUSSION QUESTIONS

- What made James stand out that earned him a scholarship?
- Do you think his journey was easy? Why?
- If you are offered good money, would you switch your career path?
- What inspires you the most about Adichie's story?
- What three words will you use to describe Adichie?
- What did you learn from his story?
- What is his most outstanding achievement?



Prof. Rabia Salihu Sa'id
April 12, 1963

Despite coming from a part of Nigeria where many girls receive little education, Rabia was lucky to have a father who supported education. He encouraged all his children to go to University. Although Rabia got married at the age of 18, she still kept that dream of going to the university. She wanted to make the most of her intelligence and create a good life for herself and her children. It took her years, but she did it.

At 29, Rabia decided to return to school. Her Chemistry scores were not high enough to allow her study medicine like her father had dreamt, so she chose to study physics. It still was not smooth sailing. To pay for her education, she ran a nursery school and sold some jewelry that had been part of her dowry. Additionally, Rabia had to take care of her four children, two of whom had health issues.

Surmounting one challenge after the other, and with family and friends' support, Rabia earned her first degree in physics. She was 1 of 4 women in her undergraduate class. After that, she went on to earn a masters and then a PhD in physics. When she started working as a research assistant, she was one of the first women employed by the department of physics at Bayero University, Kano (BUK). A few years later, she got a fulltime job as a lecturer in the same school. Rabia also has an MSc in environment and Development from the University of Reading, UK.

Rabia is dedicated to conducting research that will bring progress to Nigeria and Africa. Besides being a professor of Atmospheric physics at BUK, she also loves helping less privileged people and getting more girls into STEM. She uses lecture tours, outreach programs, mentorship and role modelling to achieve this. In 2011, Rabia and her colleagues created Nigeria's association of Women Physicists to encourage more Nigerian women to get into the field of science. In 2015, she won the Elsevier Foundation Award for Women in Science in the Developing world. Rabia defied the odds to get educated, now she uses her education and influence to ensure many more women can have the same opportunities.

DISCUSSION QUESTIONS

1. Has there been any improvements in the girl child education over the years?
2. Are there any similarities between Rabia's story and what is happening around us today?
3. What inspires you the most about her story?
4. Why do you think her journey was not smooth sailing?
5. Why do you think there were few women in her class?
6. Do you think that if you go to a Physics department in any school now you would have more women?



SILAS ADEKUNLE
July 2, 1991

All work and no play make Jack a dull boy, but what does combining work and play do? Silas Adekunle certainly answers that with his career in robotics! As a young boy, he loved gaming and robots, so he decided to explore it deeper after relocating from Lagos, Nigeria to the UK. He studied Robotics at the University of West England, Bristol and was so good that he finished with a first-class degree.

While he was at the University, he taught mathematics part-time, but he soon realized that his students often got bored. That's when Silas had an idea. What if you could teach mathematics and other STEM subjects in a fun way through robotics and gaming? Well, he tested that and found that it worked well. In 2013, he co-founded Reach Robotics, where he perfected and launched a robot, MekaMon.

MekaMon was the first intelligent gaming robot in the world, it allowed players to bring video game characters to life through robots that had lifelike movements and personalities!

When Reach Robotics first launched MekaMon, it sold 500 pieces, which was a big deal in the world of robotics. This attracted investors who invested millions of dollars. Apple, a leading technology company, partnered with Silas to be the exclusive distributors of MekaMon in the USA and UK. In 2019, Reach Robotics shut down because of the challenging business climate in consumer robotics. However, Silas continues to use robotics and gaming to transform STEM education by making the subjects more exciting for students.

In 2020, he co-founded Reach Industries, a technology startup that improves how scientists tackle global issues. The same year, he co-founded Awarri, a company focused on equipping young people with technology and developing Artificial Intelligence and Robotics in Africa. Silas desires to give other children the experience of loving science that he got through his love for gaming and robotics. His robots do that excellently!

DISCUSSION QUESTIONS

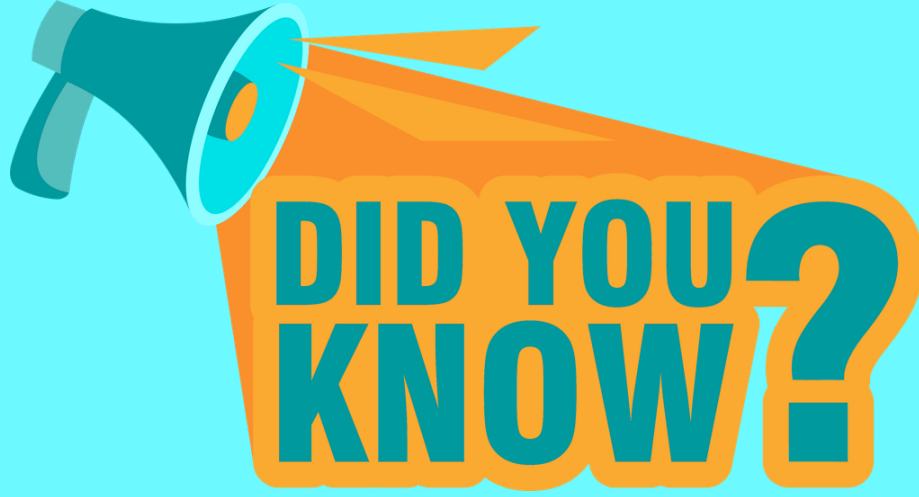
- Would you like math more if it was taught through robotics and gaming?
- What other subject can be taught effectively with robotics and gaming?



SOME CAREERS IN STEM

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

Molecular Biologist, Geneticist, Microbiologist, Biochemist, Immunologist, Pathologist, Toxicologist, Biotechnologist, Cell Biologist, Bioinformatician, Clinical Researcher, Epigeneticist, Proteomics Specialist, Regenerative Medicine Scientist, Systems Biologist, Virologist, Neurobiologist.

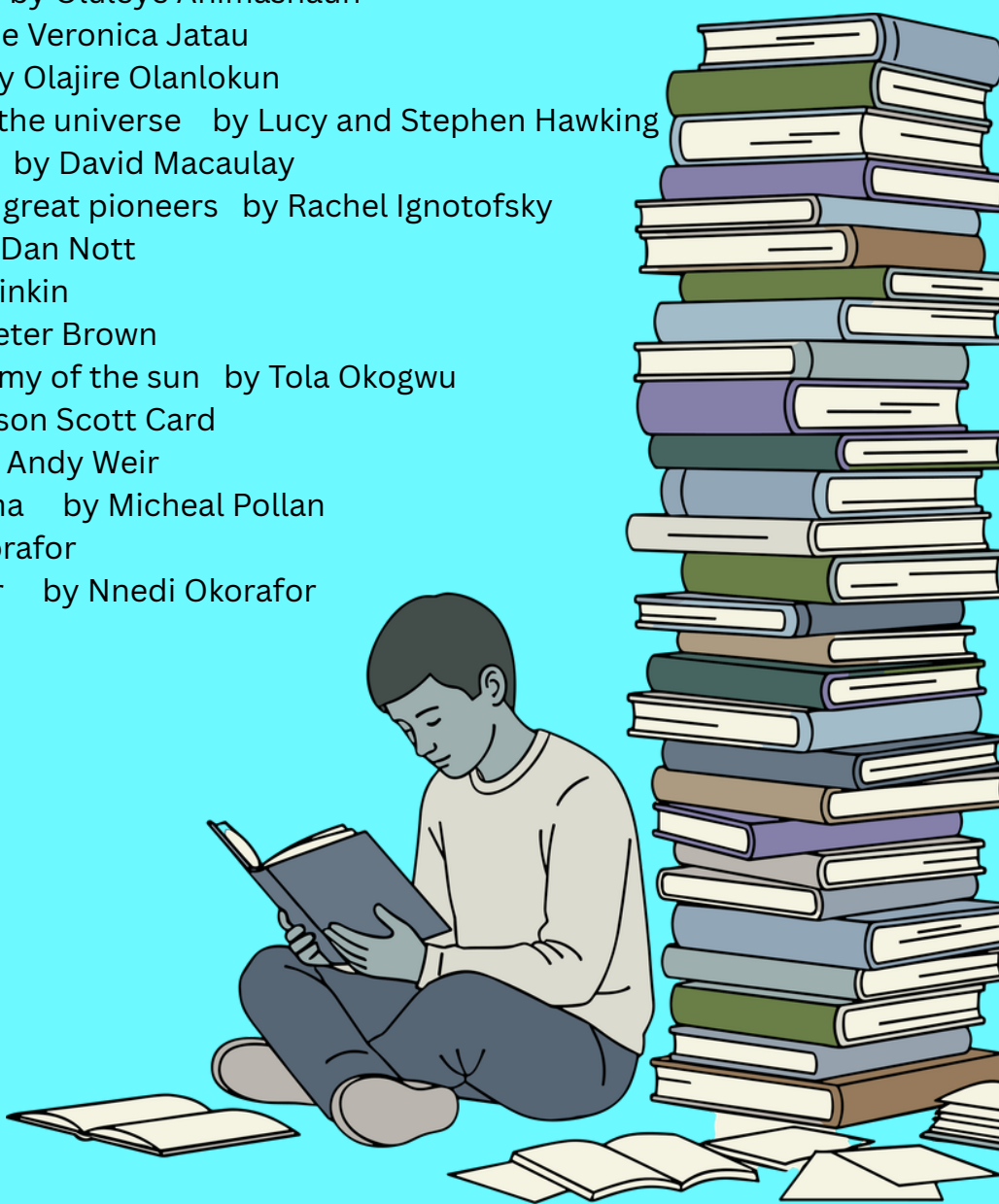


- The sun is so big, you can fit 1 million earths into it
- The moon has no air, that is why the foot prints of astronauts can stay on it for millions of years
- There are more stars than there are grains of sand on all the beaches on earth
- An octopus has three hearts
- A giraffe has the same number of neck bones as humans, theirs are just much longer
- Babies are born with more bones than adults
- The first computer was so big, it filled an entire room
- Ice is less dense than water, that is why it floats
- Mae Jaemison was the first black woman in space in 1992
- Katherine Johnson calculated flight paths for NASA missions which helped Astronauts travel safely to space
- The disease AIDS was known as GRID (Gay- related Immune Disorder) until the year 1982 when it was labelled AIDS
- Elizabeth Abimbola Awoliyi was the first female physician in Nigeria
- Lightning is hotter than the surface of the sun
- Wangari Maathai planted 50 million trees and became the first African woman to win the Nobel Peace Prize
- Artificial Intelligence (AI) systems learn by Analysing massive amounts of data and finding patterns
- Your smartphone has more computing power that the computers used for the Apollo moon landing
- Your heart beats about 100,000 times per day, that is over 35,000,000 times per year
- Your brain contains over 86,000,000,000 neurons, each forming thousands of connections
- Many early black scientist had to build their own laboratories due to segregation



A CURATED READING LIST OF SCIENCE THEMED BOOKS FOR JUNIORS

1. Fantastically great women by Kate Pankhurst
2. Zara's journey from a refugee camp to space by Uchechi Mba Uzoukwu
3. I am a Nigerian in Stem by Foluke Oyeleye
4. Addiction by Nicole Bertram
5. My sibling and I are different and this is a golden gift by Adebola Adesina
6. Standing in the sunshine by Cari Loder
7. Crafted by Mary Akanbi
8. You must be Layla by Yassmin Abdel Magied
9. Woman of the Aero planes by B.Kojo Laing
10. Gifted hands by Ben Carson
11. One day and a night by Oluleye Animashaun
12. The hound by Phebe Veronica Jatau
13. Ngozi and her son by Olajire Olanlokun
14. Georges secret key to the universe by Lucy and Stephen Hawking
15. The way things work by David Macaulay
16. Women in Science: 50 great pioneers by Rachel Ignotofsky
17. Hidden Systems by Dan Nott
18. Bomb by Steve Sheinkin
19. The wild robot by Peter Brown
20. Onyeka and the academy of the sun by Tola Okogwu
21. Enders game by Orson Scott Card
22. Project Hail Mary by Andy Weir
23. The omnivores dilemma by Micheal Pollan
24. Noor by Nnedi Okorafor
25. Zahrah the windseeker by Nnedi Okorafor





The Biochemical Society is a leading international learned society founded in 1911 to advance the molecular biosciences, including biochemistry, cell biology, and molecular biology. It supports scientists worldwide through conferences, training, grants, and policy engagement, with a strong commitment to equity, diversity, and inclusion.

Through its publishing arm, Portland Press, the Society produces high-quality journals and books that disseminate cutting-edge research globally. The Biochemical Society continues to strengthen the scientific community by promoting excellence, collaboration, and innovation in the life sciences.

