

SCIENCE INCUBATION PROJECT: POST-ACTIVITY REPORT

Some members of Pharmafluence, a youth-led organization that aims to improve the quality of education in Nigeria through unparalleled teaching and mentoring were welcome by staff and students of Zikas International School, Sabon Tasha, Kaduna for a science outreach tagged Science Incubation Project (S.I.P) 1.0, on Wednesday, 18th January, 2023. The outreach had in attendance heads and members of different committees of the organization, staff of the school, media reporters, and 136 students. This science outreach was born out of the passion to ignite into flames the passion for science in the minds of young students and was sponsored by the Biochemical Society, United Kingdom. This outreach has become imperative following the decline seen in the reading culture of students, high propensity of the younger generation to indulge in social vices, and inadequacy of mentorship programs. The Director for Research, Pharm Naomi Thomas and other members of the committee evaluated evidence-based research to back this up.



Pharm. Kenneth Bitrus David addressing the participants

Pharm. Kenneth Bitrus David, the founder of Pharmafluency highlighted the importance of science and why it ought to be promoted through outreaches such as this. He said: “Life has continually revolved around science. Without science, life stagnates. There will be no generation of knowledge, technological advancements, or human development. It plays a vital role in our daily lives as almost everything that humans use operate on the logic of science. For instance, the cloth we wear, benches we seat on, blackboards we write on, books we use to aid learning, modern transportation systems, medical devices, and many others are products of scientific innovations. In the light of that, science ought to be preserved and promoted. This was what inspired the need for this science outreach.

As junior secondary school students, you may currently not have a clearly defined career that you would like to take, it is however advised that you look inward to discover what your purpose on earth is. You can know this by asking yourself these four questions: what are you good at, what do you love doing, what can you do and be paid for, and what does the world need? An intersect of your answers is what your purpose is (the Japanese call this, Ikigai). If your ‘Ikigai’ is science related, you will need to take science-based courses when you get to senior secondary”.



Pharmafluency team and volunteers for the epigenetics experiment

To illustrate the beauty of science, two scientific experiments were carried out, titled: the making of DNA bracelets and Dice Roll Choices game of epigenetics. The students found these activities very engaging and fascinating as they unanimously provided on the feedback forms distributed to them at the end of the exercise. Words like: informative, cool, fascinating, educational, fun, inspiring, , exciting, and exciting were written by the students when asked to write words that describe the activities they carried out. Speaking during the epigenetics experiment, the facilitator, Jethro Aaron Akaito explained to the participants the meaning of epigenetics, nature of genes, and how lifestyle choices can alter chemical reactions responsible for gene labelling. The aim was to make them aware that genes are transferred from parents to their offspring, and that life choices and experiences have the potential of affecting the genetic make-up of an individual, which in turn can be transferred to their children. In this experiment, two teams of 3 volunteers each (two volunteers from JSS1 – JSS3) were given a twin template each – Twin one and Twin two respectively, with hypothetically similar genes. Five questions were asked (relating to whether or not they smoke, have bad eating habit, are chronic alcoholics, or have sedentary lifestyle) and the dice rolled to determine the choices they make. The Epigenetics protocol by 21st Biochallenges gave a clearer explanation of the experiment: *“Once all five questions are asked and the templates are complete, the students were made to understand that the dice roll (or lifestyle choice) for each question led to a physical consequence, even though their genes are the same. And the decisions the twins made don’t only affect them – they may affect their children too (and, potentially, their children’s children, and so on). Even though the twins genes were exactly the same, some lifestyle choices put labels on or took labels off particular genes. You inherit your genes from your mum and dad, but most gene labels are taken off during reproduction, so the baby can acquire its own labels unaffected by mum and dad. Sometimes, though, gene labels slip through to the next generation. So, drinking too much and getting liver disease could affect the health of your child as a result. These gene variations in gene labelling are called epigenetic changes”*. The participants were advised to shun all forms of social vices including drug abuse and to maintain a healthy life by exercising regularly, eating balanced diets, maintaining good personal hygiene, and having sufficient rest.



A cross section of the participants during the DNA Bracelets experiment

The outreach concluded with the distribution of deworming tablets (albendazole) to all the students with adequate pharmaceutical care tips given at the point of dispensing by: Pharm. Kenneth Bitrus David, Pharm. Godwin Bitrus Gajere, Elijah Sunom Umaru, Joseph Nomsu Bijimi, Jethro Aaron Akaito, and Abdulwahab Yusuff Adebayo.



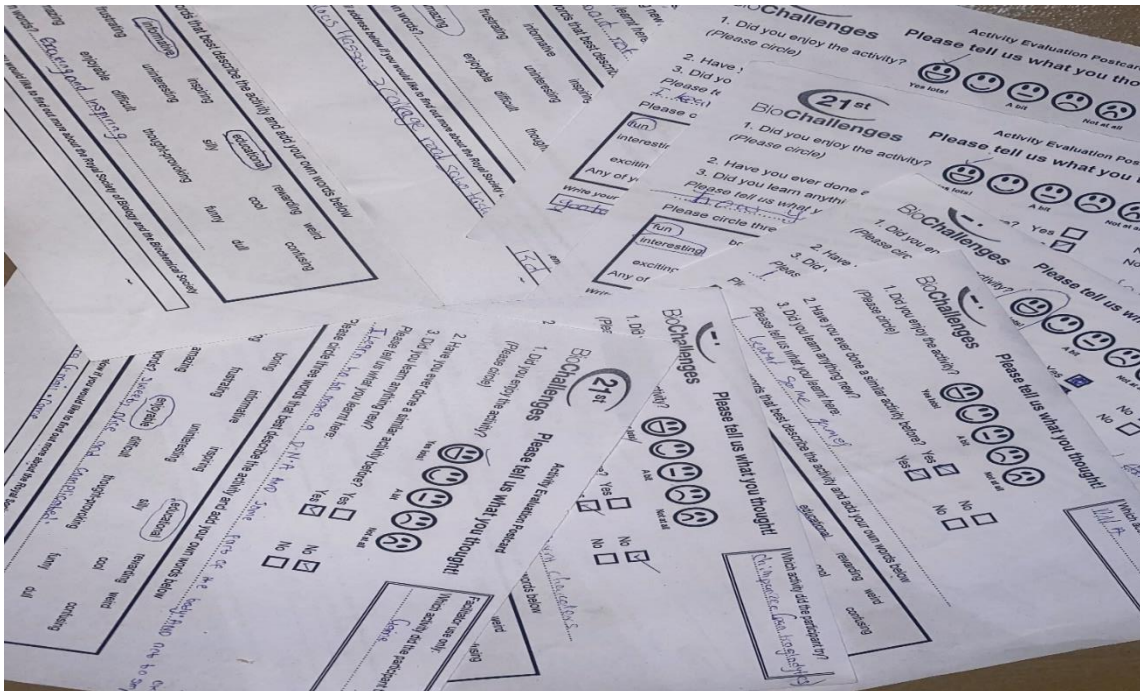
Exercise books distributed to all the participants

Table 1: Show demographic data of the participants

Demographic information		Frequency	Percentage
Age	9 – 14	93	68.38
	15 - 18	43	31.62
Gender	Male	72	52.94
	Female	64	47.06
Class	J.S.S 1	27	19.85
	J.S.S 2	33	24.26
	J.S.S 3	33	24.26
	S.S.S 1	15	11.03
	S.S.S 2	28	20.59

FEEDBACK FROM ACTIVITY EVALUATION POSTCARD

An Activity Evaluation Postcard by 21st BioChallenges was adopted to obtain feedback from the participants. Of the 136 feedback forms distributed, 128 were filled and returned by the participants. The retrieval rate of the feedback forms therefore is 94.12%.



Some filled feedback forms

Question	Options	Frequency	Percentage (n=128)
Did you enjoy the activity?	Yes lots!	110	85.94
	A bit	16	12.50
	Not at all	2	1.56
Have you ever done a similar activity before?	Yes	22	17.19
	No	106	82.81
Did a learn anything new?	Yes	125	97.66
	No	3	2.34
Words that describe the activity	Fun	85	66.41
	Boring	2	1.56
	Interesting	81	63.28
	Rewarding	31	24.22
	Amazing	77	60.16
	Enjoyable	74	57.81
	Educational	84	65.63
	Exciting	72	56.25
	Inspiring	68	53.13
	Difficult	7	5.47
	Informative	93	72.66
	Cool	71	55.47
	Funny	63	49.22
	Frustrating	4	3.13

From the objectives of the Science Incubation Project:

1. A talk on the concept: 'Science'- What is it, its use, and applications
2. Carry out an experiment adopted from the Biochemical Society's tip entitled: Evidence on hand –fingerprinting with biochemistry
3. A professional Career counsellor would talk to the students about the various career paths in science. There would also be a guidance on the selection of science courses in higher secondary schools.

...it can be said that the objectives of the outreach were achieved. There is, however, need to disseminate the findings from this outreach to a larger audience.

EVENT PICTURES CAN BE FOUND HERE:

<https://drive.google.com/drive/u/6/folders/15ai4e1LVftspEDjguKBI2MyHskHKWhy>



Kenneth Bitrus David

23rd January, 2023