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Danai Manikwa

Queen Elizabeth High School

Zimbabwe

Research and Innovation

Danai(16) aims to solve the problem of how a country can save energy and money by investigating how LEDs are used and how efficient they are compared to convectional incandescent light bulbs.

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Daniel Erasmus

Summerhill Prep School

South Africa

Science Communication

Daniel(13) made a project on how people with limited outdoor space or with animals can grow vegetables or herbs using the method with plastic bottles with an absorbent material to draw water to the plant.

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Daniel Pagiwa & Blessing Manheru

RG Primary School & Nyameni

Zimbabwe

Coding With Commitment Category

In Zimbabwe, a lot of families have resorted to the use of LPG gas for cooking since it has proven to be a reliable source of energy. However, the use of LPG gas without proper safety systems has proven to be fatal. Daniel(11) and Blessing(12) programmed an Arduino nano using the Arduino IDE app together with gas sensors as way to create an inexpensive and efficient gas detection system.

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Daphine Mutangabende

USAP Community School

Zimbabwe

Research and Innovation

In 2018 a new type of a cosmic explosion called fast blue optical transient (FBOT) was detected in a galaxy 200 million light-years away in the constellation of Hercules. Daphine(19) explains the complexities of the root cause of FBOT, turning it into simple layman terms to help better understand the recent theories of this new cosmos explosive discovery.

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David D Mukuruva

St George's College

Zimbabwe

Research and Innovation

David(18) expanded on algal biofuels and carbon sequestration by photoferrotrophic bacteria. The goal was to successfully integrate an AI-Anode Bio-Photo-Voltaic system into a colony of Photoferrotrophic bacteria. Blue-green algae (Cyanobacteria mainly found in lakes, ponds and reservoirs) power the AI-Anode BPV system through photosynthesis whilst Rhodopseudomonas polustris TIE-1 is a photoferrotrophic bacteria (Bacteria found in pond water, marine coastal sediments and swine waste lagoons.).Using fibre optics lighting and pure C02 to 'feed' the AI-Anode-BPV and R.Polustris TIE-1, a measure of the efficiency of the amalgamated cell in CO2 reduction was calculated through Faradaic efficiencies for

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Davina Ali

Riverside Private School

Zimbabwe

Research and Innovation

Davina(11) presents a solar project inspired by the need to create alternative energy sources. The world over, energy has become a serious topic for discussion.

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Denzel Marongedza

Nyabira primary

Zimbabwe

Research and Innovation

Denzel presents an easily accessible method for softening hard water through electrolysis.

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Devin İnan and Rumeysa Çiçek

Buca Science and Art Center

Turkey

Research and Innovation

Devin(17) and Rumeysa(16) developed a paper-based biosensor for the detection of model organism E. coli bacteria, which is visible, low cost, easy to use, can be integrated with a smartphone, is based on rapid colour change in the exposed environments, drinking and pool water, wastewater, beverage products.Devin and Rumeysa believe that the biosensor they have developed for the detection of biological pollutants in water and beverages, especially in regions where test laboratory infrastructure is not available, will contribute to the literature, public health, health economy and sustainable development goals such as clean water and sanitation, health and quality life, and life in water.

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Dumisaninkosi Charukwa

Irene Christian College

Zimbabwe

Research and Innovation

Dumisaninkosi(17) presents a motor vehicle that runs on electromagnetism. It uses electromagnetic induction to induce current which when connected to the system causes motion in the wheels. This vehicle solves the problem of excess green house gases produced from the burning of fossil fuels in car engines.

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Eda Solak

Buca Science and Art Center

Turkey

Research and Innovation

Eda(17) examined the implementation process of the Village Institutes system, which is the original education model, within the scope of Turkish Education History and to evaluate its effects on social development in economic, social and cultural terms in the context of educational sociology. Within the scope of this evaluation, detailed literature readings were carried out, a survey was conducted with the students of the education faculty who are receiving pedagogical education, and interviews were conducted with the teachers and health officers who graduated from the village institute.

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Edmond JNR Mkaratigwa

St George's College

Zimbabwe

Research and Innovation

Edmond(14) designed a robotic arm that imitates the same functions as a human hand. The arm is a great alternative method to engage in everyday tasks and has potential to improve the independence and quality of life of persons with disabilities.

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Edward Takudzwa Mutati

Westridge High School

Zimbabwe

Coding With Commitment Category

Edward(13) created a website named SMART DOGS. The website expresses how to help the dogs in the community.

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Edward Takudzwa Mutati

Westridge High School

Zimbabwe

Coding With Commitment Category

Edward(13) created a website called SMART DOGS. This is a website that expresses how we can help dogs in the community that suffer from a variety of problems.

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Emmaculate Thandiwe Zhuwankinyu

Queen Elizabeth Girls high

Zimbabwe

Research and Innovation

Emmaculate(17) says in Zimbabwe asthmatic people are being affected mostly as they have limited activities they can do. This is mostly due to unexpected asthma attacks that disturb sleeps, cause chest pains resulting in depression and suicidal thoughts especially among the youth.

She is solving this challenge by introducing a technologically modified model comprising of synthetic gene compounds.

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Espina Pengwe & Nkumbu Yubala

Yengwe Combined School

Zambia

Science Communication

Cheap Grain Storage

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Fungai Mugoni

ZRP High School

Zimbabwe

Research and Innovation

Fungai(14) designed a water saving tank using the water level alarm circuit of that helps and indicated the level of water in the overhead tanks. Water tank overflow alarms are devices that help in water and electricity conservation.

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Ghazal Sedighi Khavidak

Kherad

Iran

Research and Innovation

Ghazal(14) reviewed the scientific studies conducted on brain-based learning. The results of the studies showed that by taking advantage of principles and methods of brain-based learning, teachers can improve students' performance and convert the teaching process from a dry and unfeeling state into an agreeable and energetic way.

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Gillian Mushaninga

Queen Elizabeth High School

Zimbabwe

Research and Innovation

Gillian(17) improves the efficiency of a wind turbine in order to generate maximum electricity for the process.

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Gokulanath Mahesh Kumar

Mission San Jose High School

United States

Research and Innovation

Gokulanath(15) performed statistical and correlational analyses to identify and quantify the relationship between the expression of proteo-transcriptomic biomarkers associated with neurodegenerative disorders and neuronal development in the frontal white matter, parietal cortex, temporal cortex, and hippocampus with patient demographic and genetic information. Further analysis determined whether the observed correlations were brain-region-specific or sex-specific.

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Gomolemo Boikanyo

Mater Spei College

Botswana

Research and Innovation

Gomolemo(17) a safe lock for money which uses two stage out combination locks to lock two separate till drawers for notes and coins. It was mainly for street vendors. The safe lock was mounted under a table to avoid it being visible customers.

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Grace Nyakarombo

First Choice Private School

Zimbabwe

Research and Innovation

Grace(17) designed a system that manages waste by generating clean, sustainable and affordable electrical energy from it. Grace believes the system is what farm caretakers need in order to work healthily and churn out healthy produce.

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Gregory Chifumnaya

Woodcreek International School

Kenya

Research and Innovation

Gregory investigated the presence of potential bioactive phytochemicals such as flavonoids, alkaloids, triterpenoids, saponins, tannins, steroids proteins and cardiac glycosides in the leaves, bark and stems extracts of N. oleander plant commonly found in Kenya. Plant parts samples were collected from Woodcreek School compound located in Kiambu County, Kenya.

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Gugulethu Kimberley Dube

First Choice Private School

Zimbabwe

Science Communication

Gugulethu demonstrates on how antibiotics stop the growth of bacteria and why they are not effective against viruses.

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Hansini Ramachandran

American High School

USA

Research and Innovation

Hansini(17) reviewed the recent universal framework of Negative Mass Cosmology, concepts and events such as blackholes, anisotropies, friction, and symmetries that are being explained using the cosmology, and revisions to the same. It is concluded that all four of the topics are sensible applications and extensions of the Negative Mass Cosmology framework.

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Hasti Salimpour

Kherad

Iran

Research and Innovation

Hasti's(15) study aimed to define hypnosis and its history while examining the relationship between hypnosis and pain relief and the effect of hypnosis on the brain, brain waves, and pain relief. The results showed that hypnosis could change consciousness and reduce pain through three main components of absorption, suggestibility, and dissociation.

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Hope Mutasa

Christ Ministries High School

Zimbabwe

Research and Innovation

Hope(16) developed a biogas project to help with too much electricity load shedding.

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Izwirashe Chindudzi

Vainona Primary School

Zimbabwe

Science Communication

Izwirashe(11) produced an antimalarial repellant spray from the Rue (Ruta graveolens) plant. The volatile oils of the plant's leaves have been used to treat insect bites while the dried leaves have been used as a sedative to calm stomach.

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Jabunale Carmindo Ngovene

Beira International school

Mozambique

Research and Innovation

Jabulane(12) fixes clean water access challenge in Mozambique by designed a solar powered pump for communities that have no water access.

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Janko Pieters

Summerhill Prep School

South Africa

Research and Innovation

Janko(10) used old plastic bottles to make an outdoor broom which can be used by anybody to rake leaves outside. Janko used 2 litre coke bottles and cable ties to keep them together.

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Jermaine Pfumbidza & Brendon Tembo

Westridge Primary School

Zimbabwe

Research and Innovation

Jermaine(12) and Brendon(12) designed a soil testing gadget that can be used by farmers right at the farm.

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Jeslean Mudziviri

First Choice Private School

Zimbabwe

Science Communication

Jeslean(17) presents on "Stem cell therapy by stem cells."
Stem cell therapy is the promotion in repair response of diseases, injured tissues and dysfunctional body organs using stem cells(immature cells that are able to specialise and function as needed).

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Joshua Dorfling

Summerhill Prep School

South Africa

Research and Innovation

Joshua(14) created a filtration system which used empty peanut butter tubs. Joshua says the system can be used at a larger scale if people use empty paint or oil buckets.

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Kamogelo Kamogelo

Tadabigwa Junior School

Botswana

Research and Innovation

Kamogelo(15) developed a robotic prototype of money safe to be used mainly by street vendors. It is built using the Legoev3 set.

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Kaonga Emmy & Mulenga Kennedy

Yengwe Combined School

Zambia

Science Communication

Coal Balls

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Katelin Stolz

Summerhill Prep School

South Africa

Science Communication

Katelin(10) shows how people can make a water saving watering system without a lot of expensive machinery.

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Kevin Isaac Sarmiento Moreno & Luis Jared Martinez

Centro de Estudios Tecnológicos

Mexico

Research and Innovation

Pet's Dispenser

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Khan Bhebhura

Saint Eric High School

Zimbabwe

Research and Innovation

Khan(19) researched on organic peroviskites for the production of cheap solar panels in developing countries .

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Kimberly Mnisi

Summerhill Prep School

South Africa

Science Communication

Kimberly(11) presents on the uses of elephant dung in repelling insects like mosquitoes. Kimberly uses an old candle and added dried up elephant dung.

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Kondwani Mutale

Yengwe Combined School

Zambia

Research and Innovation

Quick cooker

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Kudakwashe Chikovo & Tawanashe Makuvaza

USAP Community School

Zimbabwe

Research and Innovation

Kudakwashe(17) and Tawanashe(17) automated the recycling of plastic in the Granary community to reduce human interaction with harmful waste. The automated machine is multipurpose, fast and an efficient tool in waste management.

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Kudiwanashe Machiri & Thandeka Nkomo

Westridge Primary School

Zimbabwe

Research and Innovation

Kudiwanashe(12) and Thandeka(12) looked at the production of rubber from the indigenous latex producing hurimbo tree.

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Kudzai Mangosho

Queen Elizabeth High School

Zimbabwe

Research and Innovation

Kudzai(17) introduced an acetic acid pentacell to produce a voltage enough to light lamps providing lights to students studying in remote areas because acetic acid is very cheap and readily available.

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Kudzaishe Jonga

Dominican Convent Primary School

Zimbabwe

Science Communication

Kudzaishe(12) looks at thermal energy obtained from coal, natural gas or oil and the contribution of its usage to air pollution.

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Kunashe Makahamadze & Taida Chinamo

St George's College

Zimbabwe

Coding With Commitment Category

Kunashe(14) and Taida(14) created a website that helps people to learn a local language in Zimbabwe, Shona. Bholato (the website), has pre-translated phrases and words, a variety of quizzes and games that make learning Shona exciting.

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Kundayi Marazanye

Chisipite Senior School

Zimbabwe

Research and Innovation

Kundayi(15) looked at a new way of generating clean electricity. By embedding piezoelectric material in roads, when a vehicle drives along that road the car exerts a pressure onto the crystals resulting in them producing an electrical charge.

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Lakshya Kaswan

Mahesh Public School

India

Research and Innovation

Lakshya(16) built an AI for partnership for goals among youth. It is a platform for people who can work together to achieve their Goal and also make things more easy. This AI actually analyse work, experience, and field of work to create a partnership-bridge in among youths

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Leetasha Chimbalanga

Queen Elizabeth Girls High School

Zimbabwe

Science Communication

Leetasha(13) made an artificial spider web using glue and an alcohol based sanitiser.

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Letitia Zireva & Lakeisha Chiwombe

Westridge Primary School

Zimbabwe

Research and Innovation

Letitia(11) and Lakeisha(11) answered the question: Can hybrid solar-wind recharge stations be set up all along the roads for recharging the solar cars?

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Lloyd Chinyama & Jimmy Moyana

Nyameni High School

Zimbabwe

Research and Innovation

Lloyd(16) and Jimmy(17) investigated ways to improve the efficiency of thermoelectric generator.

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Maitera Fadzai

Queen Elizabeth High School

Zimbabwe

Research and Innovation

Fadzai(18) investigates a plant for ability to maintain blood pressure at its normal level and also cure and stop hyper pigmentation.