2023 IRCC
INTERNATIONAL RESEARCH CONFERENCE FOR CHILDREN

GLOBAL YOUNG RESEARCHERS' ACADAMY

AT THE DIFFERENT ART CENTRE

Science Technology Engineering and Math for Girls

Organizing Committee

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Trivandrum.

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2023 IRCC
INTERNATIONAL RESEARCH CONFERENCE FOR CHILDREN

Different art centre

Thiruvananthapuram

July 22,23-2023

Greetings from the IRCC-2023 organizing team!

I am deeply privileged and honored to welcome you all to the International Research Conference for Children-2023 (IRCC-23) at Different Art Centre, Thiruvananthapuram, Kerala, India on 22nd and 23rd July 2023 on behalf of the organizing committee. The partnership of **STEM4girls, SCIENTIA & GYRA** in organizing **IRCC-23** has added extra momentum making this event a remarkable accomplishment.

IRCC serves as an international platform that brings together individuals who are passionate about research at the school level. It provides an opportunity for students to showcase their research findings and engage in meaningful discussions with experts in the field. We are proud to offer a diverse program, which includes specific keynote, plenary, and featured lectures by internationally established scientists. In addition, there will be talks and presentations by the school students themselves, allowing them to share their research with a wider audience.One of the key aspects of IRCC is the immense opportunities to interact with reputed scientists and to be motivated by the collaborative network among their peer groups. Aligning with GYRA mission, this two-day International conference creates a unique forum with more than 300 student researchers and 10 internationally reputed speakers.

The conference comprises of 1 Keynote Presentation, 7 Plenary Talks, 2 Featured Talks and 49Student Presentations and Panel Discussions. The keynote and plenary talkswould be accessible to all delegates at Venue 1. Students' presentations will be held in 4 venues on First day of the event. Each student will haveduration of 6minutes to present their abstract.

I, being the Founding President of IRCC, find this opportunity to cordially welcome all the next-gen scientists to explore with keen enthusiasm and deep scientific-temper to witness advanced scientific knowledge from global experts and to create collaborative network with your peers.

Finosh G Thankam, Ph.D
Founding President
Global Young Researchers' Academy (GYRA)
Oregon, USA.
Assistant Professor
Tissue Engineering and Regenerative Medicine
Dept. of Translational Research
Western University of Health Sciences
Los Angeles, United States

MESSAGE

I am excited to see so many of you here and warmly welcome you to IRCC-23. I am sure this will be a new beginning for several of you. You are participating in an international conference. I didn't have this opportunity even during my Ph.D days. What a thrilling event! STEM4Girls, GYRA, and Scientia are continuing their effort to bring scientific thinking to the young minds. This is the first step for the progress of a country. IRCC-23 has eminent researchers from around the world. My message for you is to interact with scientists, ask questions, and discuss your research with them. Please enjoy the time, explore, get new ideas, and make new friends. Thank you for being here.

Dr. Irimpan Mathews, Stanford University, USA

I completely believe that fostering scientific thinking and providing opportunities for young minds to engage with researchers is crucial for the progress of a country. Events like these create an environment where knowledge can be shared, ideas can be discussed, and new friendships can be formed.Furthermore, seize the chance to interact with the eminent researchers present at IRCC-23. Don't hesitate to approach them, ask questions, and discuss your own research. Their expertise and insights can provide valuable guidance and inspire new avenues for exploration. Take advantage of their presence and make the most of their knowledge and experience.

Dr. Finosh G Thankam, Western University of Health Sciences, USA

For those involved in research, I encourage you to share your work and discuss it with fellow researchers. It's through collaboration and feedback that we can refine our ideas, discovers new avenues, and makes meaningful contributions to respective fields. Lastly, remember to have fun and enjoy the experience! Conferences and events like these offer a unique platform to immerse yourself in the world of science and forge connections that can last a lifetime. Embrace the opportunity to learn, grow, and be inspired by the incredible minds you'll encounter.

Mr. Gopinath Muthukad, Different Art Centre, India

It is with great excitement and honor that I am welcoming you all on behalf of STEM4Girls to the International Research Conference for Children (2023) hosted at the Different Art Centre, Thiruvananthapuram, Kerala, India on 22nd and 23rd July 2023. Working with both SCIENTIA and GYRA has allowed us to make IRCC-23 an incredible event and opportunity. This international conference serves as a stage for the gathering of those interested in science and researchers of all levels from all over the world. We hope that through the various activities, presentations, lectures by internationally acknowledged scientists and important stakeholders, networking opportunities, and inspiring projects from fellow students of all ages. This conference is sure to instill a love for science, and has the potential to encourage pursuing STEM based activities and learning more about the surrounding world through an innovative, inquisitive, and inspired mindset.

Ms. Raina Raphy, STEM4Girls, USA

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International Research Conference for Children-2023 (IRCC-2023)

Venue: Different Art Centre, Thiruvananthapuram, India, July 2023

Day I July 22, 2023

TIME	ACTIVITY	
8:30 am – 09.00 am	Registration	**VENUE - I**
9:30 am – 10:00 am	An Introduction to STEM4Girls, SCIENTIA and GYRA	
10.00 am – 10:45 am	Inauguration	
10:45 am – 11:15 am	Tea Break	
11:15 am – 12:00 pm	Keynote address Dr. Praveen Vemula, National Centre for Biological Sciences, Bangalore Title: Scientist approach to solve unmet clinical needs: A journey of concept-to-commercialization	**VENUE - I**
12:00 pm – 12:30 pm	Plenary Talk I Dr. Remya Kommeri, University of Pittsburgh, USA Title: Red heart to ghost heart: ECM therapeutics	
12:30 pm – 12:45 pm	Featured Talk I Master. Riza Mohamed, Peace Public School, Kerala, India. Title: Exploring computer vision with Python and OpenCV: Unlocking the power and possibilities	
12:45 pm – 1:00 pm	Featured Talk II Ms. Devu Krishna, Ms. Aleena Stanley, SCIENTIA, DAC. Title: Genetic basis of arterioventricular septal defects in down syndrome	

1:00 pm – 2:00 pm	Lunch Break	VENUE - I
2:00 pm – 2:30 pm	Plenary Talk II Fr. Dr. Vincent Pereppadan SJ, Sneharam, India Title: Enabling children from socio-economically weaker sections for the research-focused higher education in the National Education Policy (NEP) 2020 context: A GYRA collaborative vision	
2:30 pm – 3:00 pm	Plenary Talk III Mr. Gopinath Muthukad, Different Art Centre, Kerala, India	
3:00 pm – 3:30 pm	Tea Break	

Venue – I (3.30pm – 6:00pm)	**Venue – II (3.30 – 5:30pm)**
3.30pm - 3.36pm - E002	3.30pm - 3.36pm - M014
3.38pm - 3.44pm - E004	3.38pm - 3.44pm - M015
3.54pm - 4.00pm - M001	3.46pm - 3.52pm - M016
4.02pm - 4.08pm - M002	3.54pm - 4.00pm - M017
4.10pm - 4.16pm - M003	4.02pm - 4.08pm - M018
4.18pm - 4.24pm - M004	4.10pm - 4.16pm - M019
4.26pm-4.32pm - M005	4.18pm -4.24pm - M020
4.34pm - 4.40pm - M008	4.26pm-4.32pm - M021
4.42pm -4.48pm - M009	4.34pm - 4.40pm - M022
4.50pm- 4.56pm - M010	4.42pm-4.48pm - M023
4.58pm - 5.04pm - M011	
5.14pm-5.20pm - M013	
5.22pm-5.28pm - M024	
5.30pm - 5.36pm - M025	

Venue – III (3.30pm – 5:30pm)	Venue – IV (3.30pm – 5:30pm)
3.30pm - 3.36pm - H001	3.30pm - 3.36pm - O001
3.38pm - 3.44pm - H003	3.38pm - 3.44pm - O002
3.46pm - 3.52pm - H004	3.46pm - 3.52pm - O003
3.54pm - 4.00pm - H005	3.54pm - 4.00pm - O004
4.02pm - 4.08pm - H006	4.02pm - 4.08pm - O005
4.10pm - 4.16pm - H007	4.10pm - 4.16pm - O006
4.18pm -4.24pm - H010	4.18pm -4.24pm - O007
4.26pm - 4.32pm - H011	4.26pm-4.32pm - O008
4.34pm - 4.40pm - H012	4.34pm - 4.40pm - O009
4.42pm - 4.48pm - H013	4.42pm-4.48pm - O010
4.50pm - 4.56pm - H015	4.50pm - 4.56pm - S4E001
4.58pm - 5.04pm - O012	4.58 pm – 5.04pm -S4E002
5.06pm - 5.12pm - O012	5.06 pm – 5.12pm - S4E003
	5.14pm - 5.20pm - S4E004
	5.22pm - 5.28pm - S4E005
	5.30pm - 5.36pm - S4E006
	5.38pm - 5.44pm - S4E007
	5.46pm - 5.52 pm -S4E008
	5.54 pm - 6.00pm - S4E009
	*E - Elementary Category,
	*M – Mid School Category
	*H – High School Category,
	*O – Other Category

	Day II July 23, 2023	
TIME	ACTIVITY	
9.00 am – 9:30 am	Plenary Talk IV (virtual) Dr. Darsana Sasi, University of Texas, USA Title: Bilingual education and Malayalam	VENUE - I
9:30 am – 10:00 am	Plenary Talk V (virtual) Dr. Irimpan Mathews, Stanford University, USA Title: Amazing world of proteins	

10:00 am – 10:30 am	Featured Talk III Ms. Arya Rajeev, IISER, Trivandrum, India Title:Are we alone?	VENUE - I
10:30 am – 11:00 am	Plenary Talk VI Dr. Joby Joseph, Indian Institute of Technology, Delhi, India Title: 3D vision and holograms	
11:00 am – 11:30 am	Tea Break	
11:30 am – 1:00 pm	DAC Visit + Cultural Events	
1:00 pm – 2:00 pm	Lunch Break	
2:00 pm – 2:30 pm	Plenary Talk VII Dr. Anil Kumar P R SCTIMST, India Title: Making organs: A potential option in future health care	
2:30 pm – 3:00 pm	Plenary Talk VIII Mr. Raibin Raphy Title: Robotics and artificial intelligence	
3:00 pm – 4:00 pm	Panel Discussion Research at School Level: A ladder to next-generation scientists Mr. M C Dathan Dr. Praveen Vemula Dr. Finosh G Thankam / Fr. Dr. Vincent Pereppadan Dr. Remya Kommeri Dr. Joby Joseph Mr. Gopinath Muthukad Moderator: Mr. Anto Michael	
4:00 pm – 5:00 pm	Valedictory Function and Certificate Distribution	
High Tea		

Keynote Address

SP001

SCIENTIST APPROACH TO SOLVE UNMET CLINICAL NEEDS: A JOURNEY OF CONCEPT-TO-COMMERCIALIZATION

Dr. Praveen Vemula*
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Our lab is focusing on clinical translational research through biomaterials andchemical biology programs. By using chemical design tools, we have been developingtherapeutic and prophylactic biomaterials for medical applications. In this talk, we will discuss how scientists will identify a medical problem, and howsystematically develop technologies to solve those problems. Furthermore, examplescan be discussed about how concept-to-commercialization journey in translationalresearch.

Plenary Talks

SP002

RED HEART TO GHOST HEART: SCOPE OF ECM THERAPEUTICS

Dr. Remya Kommeri
Former Fulbright-Nehru postdoctoral fellow, University of Pittsburgh, USA

Cardiovascular diseases are topmost in causing mortality in the world as well as creating economic hardship in the health system for developing countries. The fibrosis and remodeling happening after myocardial infarction is the primary reason for long-term mortality associated with acute heart failure, which is incurable unless the heart regenerates completely. Current medical interventions can control disease progression, however, never heals injury. The extracellular matrix is the perfect home for cells enriched with bioactive components yet not explored completely. The potential of ECM-derived therapeutics is well appreciated in the field of regenerative therapy. Removing cells from the ECM network without losing bioactivity is essential to retain the therapeutic potential of ECM. Extracting bioactive ECM from large porcine hearts is challenging while considering the size and thickness, which demand harsh detergent treatments damaging to bioactive components. This study aims to decellularize the porcine heart by the perfusion method and standardize perfusion reagents to retain the bioactive nanovesicles associated with cardiac ECM. The potential of these nanovesicles has been investigated on hypertrophic cardiomyocytes and pro-inflammatory macrophages.

SP003

3-D VISION AND HOLOGRAMS

Prof. Dr. Joby Joseph*
Head, Optics and Photonics Centre, IIT Delhi
*Email: joby@iitd.ac.in

The talk discusses the basics of some of the technologies used for 3D vision, over the years up to the most recent ones. This includes techniques based on lenticular sheets, beam-splitter, polarizers, time-multiplexing, holo-lens etc. and finally Holograms. Invented by Dennis Gabor - Hungarian Nobel Laureate, in 1947, the term holo-gram is taken from the Greek words holos (whole) and gramma (message). Unlike all other 3D vision techniques, hologram gives a truly three-dimensional and free-standing image without any special viewing device. 3D vision and holograms have many applications, in medical, entertainment etc.

SP004

ENABLING CHILDREN FROM SOCIO-ECONOMICALLY WEAKER SECTIONS FOR THE RESEARCH-FOCUSED HIGHER EDUCATION IN THE NATIONAL EDUCATION POLICY (NEP) 2020 CONTEXT: A GYRA COLLABORATIVE VISION

Rev. Fr. Dr. Vincent Pereppadan SJ
Director, Sneharam

National Education Policy (NEP) 2020 proposes a research-focused model of higher education enabling graduates with research degrees only can earn higher educational prospects.At the same time, vocational training is emphasized at the school and higher education levels highlighting employment opportunities, especially, for those who don't fair well in academics.Consequently, students from socio-economically disadvantaged groups (SEDGs) will have lesser chances to aspire for research-based higher education since they would more likely be motivated to take job-oriented vocational education.Our Question: How to enable students from the SEDGs to aspire for research-focused higher education?GYRA solution: Develop a collaborative model to train young children (middle school level) in research methodology by engaging them in experience-based hands-on research projects. GYRA model: Scientists, professors, professionals, and researchers volunteer to collaborate with schools, teachers, and parents to train groups of children in global standard research methodology by guiding them through research projects of children's choice. GYRA is a US-based non-profit organization jointly imagined and founded by an Indian Jesuit and a group of scientists, professors, professionals, and researchers from different parts of the world. GYRA has now started its collaborative operations in Kerala, Mumbai, Dubai, and Singapore. GYRA, in association with Stem4Girls (USA) and SCIENTIA (Trivandrum) is organizing the International Research Conference for Children on July 22 and 23 in Trivandrum https://stem4-girls.org/abstract-submission#

SP005

Physics + Chemistry + Biology + Mathematics = Regenerative Cardiology

Dr. Finosh G Thankam*
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Heart exhibit poor regenerative capacity. Hence, fatal impairments including cardiac arrest/heart attack result in fatal complications. The conventional management strategies of myocardial infarction (MI) including coronary artery bypass graft (CABG) surgery are effective to sustain life; however, myocardial regeneration has not been achieved owing to the sustenance of ischemic insults and inherently poor regenerative capacity of the native heart. Heart transplantation offers an ideal treatment strategy; however, the lack of donors and complications associated with transplantation are challenging. Hence, engineering heart tissue in the laboratory settings for replacing the injured heart is promising. Interestingly, cardiac tissue engineering emerged as an inter disciplinary field involving the principles of Physics, Chemistry, Mathematics, Engineering and Biology to design and develop engineered heart tissue construct for accelerated cardiac healing and regeneration following an injury. We developed a hydrogel-based cardiac tissue engineering template for incorporating the stem cells (from the heart) phenotypes destined for cardiac regeneration and a translationally relevant minimally invasive swine-MI model for cardiac regeneration. Thus, the multidisciplinary approach of cardiac tissue engineering opens significant translational avenues for myocardial regeneration and cardiac management benefiting millions of MI sufferers across the globe.

SP006

LINKING ADIPOSE TISSUE AND METABOLIC SYNDROME

Dr. Nisha V M*
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Adipose tissue is a highly adaptive and critically important metabolic tissue, with intrinsic roles in both health and disease. It is now well established that adipose tissue plays a significant role in a diverse range of physiological processes, including metabolic homeostasis and disease progression. Excessive adipose tissue expansion is associated with declines in health and quality of life, however, the type of expansion (hyperplasia or hypertrophy) and the anatomical location of the adipose depot, are now known to be key factors that affect metabolic health. The functional differences that occur in hypertrophic adipocytes and how this can contribute to metabolic complications are described. The molecular and cellular changes in adipocytes during metabolic dysfunction were studied using 3T3L1 cells. Endoplasmic reticulum stress was induced using tunicamycin and changes in oxidative stress and mitochondrial function were analyzed. This establishes Adipocytes as an area for extensive research on metabolic syndrome and associated complications. Further understanding of the molecular mechanisms in these interconnecting pathways in metabolic diseases may lead to identification of novel therapeutic targets.

Featured talks

SP007

ARE WE ALONE?

Arya Raj
BSMS Student, IISER TVM

Astrobiology is a branch of science which deals with the study of origin, evolution and distribution of life in the universe. It tries to find answers to the quest 'Are We Alone'. From the History of Earth it's come to know that time (Age of planet) plays a role in the evolution of life. The Probability of finding aliens is high. So there are classifications available for the civilizations based on their energy usage. Even though probability is high, evidence of extraterrestrial life is not obtained yet. This paradox is called Fermi's Paradox. There are two important hypotheses that can explain this paradox which are, Great Filter Hypothesis and Rare Earth Hypothesis. Exoplanet exploration and studying elements observed in exoplanets are important in Astrobiology. Mainly there are two methods that help in these processes are Radial Velocity Method and Transit Photographic Method. There are several programs owned by NASA that help the studies of Astrobiology, most importantly the SETI (Search for Extra- Terrestial Intelligence) program, which uses several radio observatories in the research. There are some new innovations in this field like JWST and research articles in this field that encourage future research.

References:

[1] Gray, Robert H. "The Extended Kardashev Scale." The Astronomical Journal 159.5 (2020): 228.

[2] Urban, Tim. "Thefermi paradox." Huffington Post (2014).

[3] Hanson, Robin. "The great filter-are we almost past it." preprint available at http://hanson. gmu. edu/greatfilter. html (1998).

[4] Cramer, John. "The" Rare Earth" Hypothesis." (2000).

[5] Hatzes, Artie P. "The radial velocity method for the detection of exoplanets." Methods of Detecting Exoplanets: 1st Advanced School on Exoplanetary Science (2016): 3-86.

[6] Deeg, Hans J., and Roi Alonso. "Transit photometry as an exoplanet discovery method." arXiv preprint arXiv:1803.07867 (2018).

[7] Sabelhaus, Phillip A., and John E. Decker. "An overview of the James Webb space telescope (JWST) project." Optical, Infrared, and Millimeter Space Telescopes 5487 (2004): 550-563.

[8] Hao, Jihua, et al. "Abundant phosphorus expected for possible life in Enceladus's ocean." Proceedings of the National Academy of Sciences 119.39 (2022): e2201388119.

[9] Mogul, Rakesh, et al. "Potential for phototrophy in Venus' clouds." Astrobiology 21.10 (2021): 1237-1249.

SP008

EXPLORING COMPUTER VISION WITH PYTHON AND OPENCV: UNLOCKING THE POWER AND POSSIBILITIES

Riza Mohamed
Peace Public School, Kerala, India

Discover the incredible possibilities of computer vision using Python and OpenCV. Explore fundamental concepts like image processing, object detection, and facial recognition. Witness exciting applications such as kid-friendly item identification, virtual rock-paper-scissors games, and coin counting, highlighting the versatility of computer vision in real-life scenarios.

Gain insights into image filtering, thresholding, edge detection, and transformations, and learn how these techniques can enhance and manipulate images effectively. Witness live demonstrations of object detection using Haar cascades and machine learning algorithms, enabling accurate and real-time detection.

Delve into the captivating field of facial recognition, covering face detection, recognition, and identification techniques using OpenCV. Discover the development of facial recognition systems and their applications across various domains.

Throughout the exploration, emphasis is placed on the practicality of computer vision using Python and OpenCV. Witness the development of innovative projects that demonstrate the potential of these technologies in solving real-world problems. By the end of this journey, you will have gained valuable insights into computer vision applications, the power of OpenCV, and the ability to create your own intelligent vision systems.

Students' Presentations

Elementary Category

E001

DOCUMENTATION OF MYCORRHIZA AND ITS BENEFITS ASSOCIATED WITH PADDY FIELD

MahaswetaGuha*, MeghnaMondal, MohanaMondal, Rima Gayen, Spandan Roy, SumanSardar,
PratapnagarGiridhariHigh School
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Abstract: Rice is a primary diet and indispensable source of nourishment and calories for more than 50% of world residents (FAO,2016). Association of mycorrhiza with paddy roots with its impact in nutrient cycle and its association with nematodes are also observed at rhizospheres zone of paddy in Sonarpur block of South 24 Parganas district of West Bengal, India. As major component of the diets of many people of India and other worldwide, the enrichment of rice cultivation can contribute toward the SDG2, which is "End hunger, achieve food security and improve nutrition and promote Sustainable agriculture". Mycorrhizal interventions and usage of entomopathogenic nematodes with simultaneously reducing bioaccumulations and biomagnifications, due totheir biofertilizer with bionematicidal activities, (Guha et al., 2023) promotes SDG3. So, by culturing this ecofriendly bio-control sustainable measure "Good Health and Well-Being," SDG3, will also be promoted with new sources of employment. Poverty can be irradicate to achieve SDG 1, i.e. "No Poverty" by opening a new way of entrepreneurship as well as employment by culturing mycorrhiza. Other organisms that play important role in ecosystem and Nature of soil are also protected from excess use of chemical pesticides. Identifications of predatory nematodes can lead culture procedures with opening a new era of experiments which become beneficial for agriculture as well as to maintain mangroves (Guha&Gantait, 2023). Only mangroves can protect Sunderban from cyclones and soil erosions by protecting natural carbon sinks. So, SDG13, the climate protection and SDG15, the life on land protection can be endorsed.

References:

FAO IFAD, UNICEF, WFP and WHO 2019. The State of Food Security and Nutrition in the World 20

E002

MENSTRUATIONAL TABOOS FACED BY THE INDIAN WOMEN

Sana Fathima*, Nivedhitha V, Rebecca Sara Mathew, TamannaShameet, Alna Baby
Assisi Vidyaniketan School,Chembumukku
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Abstract: Menstruation is the discharge of blood and tissues through the vagina. It is unique to girls. Despite this, this has always been surrounded by secrecy and myths in our society. The Taboos about menstruation present in many societies impact on girls and women's emotional state and health. There 1000's of myths and prohibitions imposed on menstruating females which are not true. Everyone feels shame or considers it as a mistake if they talk about periods outside. Girls often grow up with limited knowledge of menstruation because their parents shy away from discussing the matter with them. Culturally, in many parts of India, menstruation is still considered to be dirty and impure. Many girls and women are subjected to restrictions in their daily lives simply because they are menstruating. Not entering the pooja room and kitchen are the major restrictions among urban and rural girls respectively during periods. During periods women face cramps which is equivalent to the pain of experiencing heart attack. Exercising will reduce the pain. Certain yoga Asanas also will help you feel better. The first and foremost strategy in this regard is raising the awareness among adolescent girls related to menstrual health and hygiene. Period products shouldbe tax free and affordable. Low-cost sanitary products will help rural girls,menstrual cups are eco-friendly and budget friendly and re-usable.Educational campaigns and empowerment of girls also will help in this regard. We have to respect this virtue along with our culture

References

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7175471/ https://www.ncbi.nlm.nih.gov/pmc/ar

E003

ROCKET LAUNCH DEMONSTRATION USING LEGO

Dera D*, Deron D. A.
SFS LPS Vizhinjam
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Abstract: Deron D.A is a 4 years old preschooler(LKG) who loves to build things using LEGO. Lego is a line of plastic construction blocks that are manufactured by The Lego Group. Its an engaging and creative hobby to construct the real world things using LEGOs as per ones imagination and creativity. Deron is fond of LEGOs more than toys and is very creative with construction of LEGO vehicles. As this platform is intended to improve the scientific skills in kids, Deron is planning to demonstrate the ROCKET LAUNCH PROCESS with the aid of a Launch site constructed using LEGOs. Kindly consider this abstract for upcoming event. You may reach out to DeraD(M/o Deron D .A) on +918943597635 in case of any queries.

References.:
www.lego.com

E004

NEPHOLOGY

Rolf Stadler*, BredanJenning
JNetwsyst manage
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Abstract: Resource management in a cloud environment is a hard problem, due to the size of contemporary data centres; the multiplicity of resource types and their interdependencies; the fluctuation and unpredictability of the load; as well as the range of aims of the numerous participants in a cloud ecosystem. As a result, both academia and industry initiated major research initiatives in this area. We evaluate the recent literature in this study, including 250? papers and highlighting noteworthy findings. We sketch up a conceptual framework for cloud resource management and use it to organize the current state of the art evaluation. We highlight five problems for future research based on our study. These include delivering predictable performance for

cloud hosted applications; attaining global manageability for cloud systems; designing scalable resource management systems; comprehending economic behavior and cloud pricing; and building mobile solutions the size ofcontemporary data centers; the multiplicity of resource types and their interdependencies; the fluctuation and unpredictability of the load; as well as the range of aims of the numerous participants in a cloud ecosystem. As a result, both academia and industry initiated major research initiatives in this area.

References.:

1. Abts, D., Felderman, B.: A guided tour of data-center networking. Commun. ACM 55(6), 44–51 (2012)

E005

INVESTIGATING THE DISTRIBUTION PATTERN OF SIZE OF LEAVES

Muhammed Jibraan T, Fathima Kenza S, Amal Abdulrahman
Farook, Calicut, Kerala, India

Abstract: Nature follows distribution patterns in its population and events. The knowledge about this pattern provides better understanding about natural phenomena. The height of a population, probability of events when rolling a dice, the value of blood pressure, the size of shoes, the blood pressure etc. follow normal distribution patterns. However, many real-life phenomena like population of cities, city size and income, strength of earthquake falls in power law distribution pattern. In this study, wefind the distribution pattern associated with the size of leaves in selected plants. The size measurement is carried out using simple tools like scales and the distribution is plotted in graph papers.

References:

1. Pinto et. al(2012), Communications in Nonlinear Science and Numerical Simulation, (doi.org/10.1016/j.cnsns.2012.01.013)
2. https://studiousguy.com/real-life-examples-normal-distribution/

Students' Presentation

Middle School Category

M001

BRINGING AWARENESS OF PLASTIC WASTE AND ITS MITIGATION STRATEGIES TO THE PUBLIC

S. Mayaprabha*, Abhilekshmi, Alex Binu, Hanna Fathima, Aibel, Irine Susan Sajeev, Sreehari B R, FevinLalu John, Helena Thomas, Reuban L Chacko

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Abstract: Excessive production,consumption and indiscriminate disposal of plastic wastes contribute to plastic pollution, and negatively impact the environment and human health. The lack of awareness among the public contributes to plastic pollution. This study aims to assess the students knowledge and practices towards plastic pollution among senior secondary and secondary students/teachers in St Johns school, Anchal, a school in Kollam district in Kerala. It is anticipated the student community's knowledge,attitude and practice towards plastic pollution can help identify problems and challenges and can make appropriate policies and its mitigation.

This study will conduct a survey among the student groups to evaluate their knowledge of the detrimental effects of plastics. The results of this survey will be analyzed and used as a guide to promote plastic mitigation strategies among the student groups.

M002

HOW ANY WILDFIRE AFFECT THE HEALTH OF CHILDREN AGED BETWEEN 5-10 YEARS? CASE STUDY: BRAHMAPURAM

Sthuthi Sreejith*, Sriya V V, Advait Santhosh, Amna Palakkal, Fathima Sheza

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Abstract: Wildfire smoke is an increasing environmental health threat to which children are particularly vulnerable, for both physiologic and behavioural reasons. To address the need for improved public health messaging this review summarizes current knowledge and knowl-

edge gaps in the health effects of wildfire smoke in children, as well as tools for public health response aimed at children, including consideration of low cost sensor data, respirators, and exposures in school environments. Understanding the effect of wildfire smoke exposure on human health represents a unique interdisciplinary challenge to the scientific community. Population health studies indicate that wildfire smoke is a risk to human health and increases the healthcare burden of smoke-impacted areas. However, wildfire smoke composition is complex and dynamic, makingcharacterization and modeling difficult. The particulate found in wildfire smoke is a heterogeneous mixture of chemical species. The chemical make-up of wildfire smoke depends on the type of biomass burned and the conditions for burning. Wet or green vegetation burns differently than dead and dry vegetation, burning hardwood produces different chemical species than burning softwood, and different stages of combustion produce different chemical profiles. On March 2, 2023, 60 acres of garbage mounds in the Brahmapuram waste treatment facility located in Kochi, Kerala caught fire, posing a significant challenge to the state's firefighting systems. The fire was finally put out on the evening of March 13, 2023. A Kerala High Court-appointed Committee has determined that the Brahmapuram waste treatment facility does not adhere to the 2016 Solid Waste

References.:
https://timesofindia.indiatimes.com/city/kochi/brahmapuram-fires-impact-kerala-hc-orders

M003

HOW CAN THE BUILDINGS BE DESIGNED TO CONTROL THEEVOLVING HEAT WITHOUT AFFECTING THE ENVIRONMENT?

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Abstract: Overheating in residential buildings continues to be a major concern for the building industry. There are many contributing factors to this issue. It not only causes discomfort for the occupants but also can be detrimental to their well-being, causing ill-health and in extreme cases fatalities. Moreover, this issue affects economic condition too. Extreme events like this will most likely affect the cost of air, energy, water quality, and human comfort. To prevent the problems caused by this it is crucial to focus on the causes and try to control it in the best possible ways. Many factors affecting this problem were analysed and it is found that

building design and orientation of buildings impact, how much heat is retained and circulated within the built environment. Information collected from different sources indicates that the overheating can be controlledeffectively by innovative building designs with cool roofs, insulation, designing green environment, high performance windows etc. This in turn implies that through planning and design of buildings, a careful well considered approach can help to alleviate the risk of overheating in a sustainable sense, and create buildings that are healthy, beautiful and comfortable.

References.:
https://www.cibsejournal.com/technical/hot-of-the-press-research-on-overheating-in-homes/

M004

HOW DOES FAST FOOD HARM THE ENVIRONMENT

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Abstract: The well being of the environment concerns every individual who calls Earth home. The fast food industry could be having a catastrophically catalytic effect on global warming. Given its high dependence on natural resources such as water, land and feed for livestock, the animal agriculture involved in creating fast food products is a sizable contributor to environmental issues. Meat and dairy farms are the biggest factors behind change in the way land is used globally, often prompting deforestation and diverting resources away from other valuable needs. Pollution is a huge problem and it doesn't seem like it'll be going away anytime soon and fast food contributes to that problem. We can reduce the negative effect of food in our environment by making simple changes like eating fewer animal products, using less plastic, eating more fresh produce, and decreasing food waste. Fortunately, fast-food chains have a number of tools to help them reach sustainability goals. Forexample, they can use energy-efficient appliances and lighting systems, switch from disposable packaging to reusable containers, promote locally grown ingredients, and reduce water usage. We can also reduce the carbon impact of the food we eat by eating less meat and dairy, as well as buying more locally source, seasonal food energy-efficient appliances and lighting systems, switch from disposable packaging to reusable containers, promote locally grown ingredients, and reduce water usage. Therefore, you don't have to cook fancy or complicated masterpieces - just good food from the fresh ingredients.

References.:
https://www.statista.com/statistics/561263/india-average-fast-food-consumption-per-week/
https://www

M005

OCEAN ACIDIFICATION AND HOW IT AFFECTS THE AQUATIC PLANTS AND ANIMALS

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Abstract: Ocean acidification is the ocean's pH reduction over an extended period, caused primarily by the uptake of carbon dioxide (CO2) from the atmosphere. However, continued ocean acidification is causing many parts of the ocean to become under-saturated with these minerals, which is likely to affect the ability of some organisms to produce and maintain. Ocean acidification is affecting the entire world's oceans, including coastal estuaries and waterways. Many economies depend on fish and shellfish and people worldwide rely on ocean food as their primary protein source. These changes in ocean chemistry can also affect the behavior of non calcifying organisms. Certain fishs ability to detect predators is decreased in more acidic waters. The entire food web may also be at risk when these organisms are at risk. Ocean acidification reduces the amount of carbonate,a key building block in seawater. This makes it more difficult for marine organisms, such as coral and some plankton, to form their shells and skeletons, and existing shells may begin to dissolve. Ocean acidification results from an increased concentration of hydrogen ions and a reduction in carbonate ions due to increased amounts of CO2 absorption. The most effective way to limit ocean acidification is to act on climate change, implementing solutions to dramatically reduce the use of fossil fuels. If we dramatically cut our global warming emissions, and limit future warming, we can significantly reduce the harm to marine ecosystems.

References.:
https://www.pmel.noaa.gov/co2/story/What+is+Ocean+Acidification%3Fhttps://oceanservice.noaa.gov/fac

M006

SOLAR WIRELESS ELECTRIC VEHICLE CHARGING

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Abstract: The system makes use of a solar panel, battery, transformer, regulator circuitry, copper coils, AC to DC converter, atmega controller and LCD display to develop the system.

The system demonstrates how electric vehicles can be charged while moving on road, eliminating the need to stop for charging. The solar panel is used to power the battery through a charge controller. The battery is charged and stores dc power. The DC power now needs to be converted to AC for transmission. For this purpose we here use a transformer The power is converted to AC using transformer and the regulated using regulator circuitry. This power is now used to power the copper coils that are used for wireless energy transmission. A copper coil is also mounted underneath the electric vehicle. When the vehicle is driven over the coils energy is transmitted from the transmitter coil to ev coil. Please note the energy is still DC current that is induced into this coil. Now we convert this to DC again sothat it can be used t charge the EV battery. We use AC to DC conversion circuitry to convert it back to DC current. Now we also measure the input voltage using an atmega microcontroller and display this on an LCD display. Thus the system demonstrates a solar powered wireless charging system for electric vehicle that can be integrated in the road. Well here we develop an EV charging system that solves both these problems with a unique.

M007

REPLACEMENT OF PLASTIC CUTLERIES BY AN EBO PRODUCT: EDIBLE CUTLERY

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Abstract: Plastics are synthetic polymers generated from rapid industrialization which contains toxic substances like di-2(-ethylhexyl)phthalate, bisphenol A and polyhalogenatic chemicals, all of which are carcinogenic in nature. These days, the food-counters are also using plastic cutleries. Globally, 640-billion units of plastic cutlery are utilized every year. The utilization of plastic products has beyond-description losses like air pollution caused by pyroletic-conversion of plastic wastes as it releases polyaromatic hydrocarbons, CO2 and contaminants such as dioxins in environment. Another impact is the pollution of marine environment as Nonylphenol, polychlorinated biphenyl and pesticides including bisphenol A, polycyclic aromatic hydrocarbons, dichloro-diphenyl-trichloroethane and polybrominated-diphenyle-ethers are the harmful substances found in marine plastic wastes. Also, micro-plastics damage the internal organs of poor animalswhen they consume it and it chokes their throat and leads to their death. It also harms humans by reaching us through the food chain of bioaccumulation. We consume these hormone-impersonating chemicals through the sea food, meat and products which rife with micro-plastics and this leads to severe health impacts like- obesity,

reproductive-abnormalities, cardiovascular-alterations, diabetes, celiac-diseases, cancer and coronary heart disease. This aimed to assess the replacement of plastic cutleries. A suitable substitute is "EDIBLE CUTLERY" made up of plant-based products also known as EBO (eco-friendly, bio-degradable and organic). The major purposes for having edible cutlery as a replacement are bio-degradability and eco-friendliness. It will also help to achieve the Sustainable Development Goals by ensuring healthy lives and well-being for all (SDG-3) and taking urgent action to combat climate changes and its impacts (SDG-13).

References.:

1)https://www.researchgate.net/publication/355473712_Edible_Cutlery_- _Publishedpdf_by_Goutam_Roy_Ch

M008

TRANSFORMING USED TOYS INTO NEW CREATIONS: AN ENVIRONMENT FRIENDLY REPURPOSING

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Abstract: This study explores the concept of repurposing used toys to create new playthings. The study investigates the environmental impact of discarded toys, emphasizing the need for sustainable practices in the toy industry. It delves into the process of transforming used toys and other discarded materials into new creations, highlighting the benefits of fostering creativity, resourcefulness, and problem-solving skills among children. The study acknowledges the challenges involved, such as finding suitable toys and ensuring safety with adult supervision. Our major findings highlight the benefits of children's teamwork in repurposing activities, including the development of problem-solving skills and a sense of ownership. Despite the challenges involved, the research promotes the concept of repurposing toys to reduce waste and inspire creativity among young individuals. Overall, the research showcases the potential of repurposing toys to reduce waste, nurturecreativity, and instill a sense of pride and accomplishment in young minds.

M009

A STUDY OF LOSS OF BIODIVERSITY IN A MINING SITE

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Abstract: The loss of biodiversity is one of the most urgent global environmental problems of our time. Public education and awareness building is key to successful biodiversity protection. Biodiversity is being affected adversely day by day.When we searched for the causes, we found that mining sites have a major role in the degradation of its nearby environment. To stop manipulating the biodiversity of the mining atmosphere we have come upon some significant questions: •What are the species of plants and animals that are most affected? How are they affected? Our group members will visit the mining site in our locality and collect information regarding this from the nearby people. We will analyze their answers and study accordingly.

M010

TO ANALYSE THE DEPLETION OF CLERODENDRUM VISCOSUM

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Abstract: This research work is done to identify the use and effective medicinal properties of the plant Hill Clerodendrum and make people aware of its conservation, cause of depletion, etc...This research put forward the importance of the plant Clerodendrum Viscosum.The method used for the completion and fulfillment of this research work is referring to articles, blogs, and methods of survey. Through this study, we obtained the medicinal values carried

out by this plant, including properties curing diseases like oxidative stress, skin diseases, intestinal infection, kidney diseases, cancer, and trauma. We concluded that the plant is fruitful in many ways, and it should be conserved properly to the end. It is found to be helpful for the future, also this would provide much information for future research.

M011

ASSESSMENT OF LOCAL BIODIVERSITY

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Abstract: Local biodiversity of insects reflects climate change. Roveen A F, STD V1 F Viswabharathy Public School, Neyyattinkara, TVM Climate change has significantly affected the biodiversity. Human encroachment and pollution offer potent threat to insect biodiversity. Insects being the indicators for environmental sustainability and climate change, we hypothesized that the local insect biodiversity reflects environmental stability. My findings revealed several insect species around my locality near Neyyattinkara. These insects were photographed and identified with the help of a scientific expert. Assessment of these insects and the natural surroundings revealed that variations in climate affect their life cycle. Hence, these insects can be considered as indicators of climate change. Interestingly, the varieties of species I found were highly adaptable to the existing ecosystem. Also, rich vegetation and the fertility of the soil help to thrive these insectsand to increase in abundance. Hence, based on insect biodiversity, it can be concluded that the area under investigation is ecofriendly with favorable climate to sustain biodiversity.

M012

TRAFFIC NOISE POLLUTION AROUND ANJENGO FORT IN KERALA AND ITS POSSIBLE IMPACT ON HUMAN HEALTH

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Abstract: Noise pollution affects the physical and mental health of people living in excessive noise pollution areas. According to the World Health Organization, noise is the second largest

environmental pollutant after air pollution impacting human health. At Anjengo, our village, we have noticed that vehicles passing the sharp curves around the historical Anjengo Fort are overly honking. Does this traffic noise cause pollution with more than 80 decibels? The purpose of this research is to assess the noise produced by the traffic at the curves of the Anjengo Fort. Researchers have positively correlated noise pollution with human health. Our literature review shows that traffic noise pollution heavily impacts physical and mental health. Therefore, in our observational study of traffic noise production using a decibel meter, we measure the noise intensity on the road and inside the roadside houses. Our analysis of the data will help us to determine the level of noise pollution and the possible impacts on health of people living around and of those road users. This study is expected to seek some effective ways to control and eliminate traffic noise pollution at Anjengo Fort.

References

1. Hiral J. Jariwala, Huma S. Syed, Minarva J. Pandya, Yogesh M. Gajera., "Noise Pollution & Human Health: A Review". https://www.researchgate.net/profile/Hiral-Jariwala/publication/319329633_Noise_Pollution_Human_Health_A_Review/links/59a54434a6fdcc773a3b1c49/Noise-Pollution-Human-Health-A-Review.pdf

2. Ganiyu, S. A. and Adedeji, Y. M. D., "A Study of the Sources of Noise Pollution and their Impacts on the Built Environment". https://www.researchgate.net/publication/308640301_A_STUDY_OF_THE_SOURCES_OF_NOISE_POLLUTION_AND_THEIR_IMPACTS_ON_THE_BUILT_ENVIRONMENT

3. Wahied Khawar Balwan, Neelam Saba., "Impact Of Sound Pollution On Animal And Human Health". https://www.researchgate.net/publication/349316573_IMPACT_OF_SOUND_POLLUTION_ON_ANIMAL_AND_HUMAN_HEALTH

4. Reeta Singh, Dipesh Raj Pant, Resham Baniya., "Traffic noise pollution assessment along the Ring Road of Kathmandu Valley, Nepal. https://www.researchgate.net/publication/363542666_Traffic_noise_pollution_assessment_along_the_Ring_Road_of_Kathmandu_Valley_Nepal

5. Noise pollution is a major problem, both for human health and the environment https://www.eea.europa.eu/articles/noise-pollution-is-a-major#:~:text=In%20fact%2C%20according%20to%20some,air%20pollution%20(particulate%20matter).

M013

AWARENESS OF SICKLE CELL DISEASE AMONG CLASS SEVENTH STUDENTS IN VIDHARBHA REGION OF MAHARASHTRA

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Abstract: : Sickle cell disease (SCD) is one of the most common hereditary diseases occurring worldwide. SCD is an irreversible, untreatable disease, it damage organ or system in human body. The prevalence of SCD varies greatly in different parts of our country; the highest prevalence is seen in four state Maharashtra, Gujarat, Orissa and Chhattisgarh. The main objectives of the study were to assess the awareness and knowledge about SCD among 7th class students. This will help to identify gap of awareness and useful to design future awareness programme. The questionnaire has 12 questions about knowledge and awareness on SCD. It was given to 110 students-63 males and 47 females studying in class 7 in a Red Rose Convent, Ballarpur. Participants ages ranged from 11 to 12 years. 62 (56.36%) student have heard about SCD before. Most of the students 80(72.72%) have misconception about causes of SCD. On the basis of answer obtained from student 68(61%)the source of information on sickle cell anaemia were parent, friends or relatives, newspaper school televion and radio. 27 (24.54%) knew the uses of blood for diagnosis of disease. Only 11(10%) students were vigilant on the pattern (AS or SS) of SCD. The present study has revealed significant understanding that knowledge of the disease varied from person to person on one aspect to another with an overall moderate level.

References.:

1. D.Mohanty, M.Mukherjee, Sickle cell disease in India,Curr.Opin.Hematol.9 (2002) 117-122
2. Chirag

M014

"PROTECTIVE BUBBLE SHIELD: SAFEGUARDING ICEBERGS AND PRESERVING ARCTIC AND ANTARCTIC ENVIRONMENTS"

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Abstract: : This abstract presents a groundbreaking concept aimed at safeguarding the optimal conditions necessary for the maintenance of icebergs in the vulnerable Arctic and Antarctic regions. In light of the escalating global temperature changes that contribute to the accelerated melting of icebergs, it is imperative to address the far-reaching implications, including coastal inundation, rising sea levels, and the potential emergence of novel diseases through the release of ice-bound viruses. Central to this proposal is the introduction of an imperceptible bubble, equipped with a multifaceted sensitivity to temperature fluctuations, environmental dynamics, and the rhythmic behavior of icebergs. The paramount challenge entailed by this innovative idea pertains to the development of a resilient shield capable of withstanding formidable environmental factors whileeffectively preserving the integrity of icebergs. Notably, contemporary technological advancements offer prospects for the implementation of remote sensors endowed with remarkable detection capabilities, enhancing monitoring efficacy even from considerable distances. These sensors could be strategically mounted on towers, thereby maximizing visibility and enabling seamless communication with the icebergs. Crucially, the proposed bubble must adhere to stringent ecological criteria and refrain from disrupting the natural equilibrium of the respective ecosystems. Developing a material with such characteristics presents a formidable yet attainable objective, with dedicated research endeavors poised to yield the necessary breakthroughs in crafting a protective shield that aligns harmoniously with the surrounding environment. The potential environmental impact engendered by this innovative solution is undoubtedly vast and commendable. By fortifying the delicate Arctic and Antarctic ecosystems and preserving the longevity of icebergs, this pioneering concept carries immense promise for mitigating the perils associated with escalating global temperatures. The abstract concludes with an optimistic outlook, underscoring the aspiration that future developments and dedicated investigations will bring this vision to fruition, delivering tangible benefits to our planet's vulnerable polar regions.

References.:

https://www.bbc.com/future/article/20200923-could-geoengineering-save-the-arctic-sea-ice

M015

THE CHANGES IN THE PERSPECTIVE OF LOCAL PEOPLE BEFORE AND AFTER COLLECTING PLASTIC WASTE

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Abstract: Plastic waste is one of the major problems that the world faces today. India produces about 3.4 million tons of plastic waste every year. In many places, steps have been taken to collect plastic waste to reduce its harmful effects. Initially, it has been noted that plastic waste is dumped in many areas of our locality. Since proper waste collection methods were adopted in the panchayath many such cases disappeared. We assumed that proper waste management methods might bring significant changes in the perspective of people. We aim to study the local people from Koratty Grama Panchayath, Thrissur before and after collecting plastic waste through the conduction of a survey. The study is limited to 200 houses in the 10th ward of Koratty Grama Panchayath. We have chosen waste plastic carry bags for our study. In our locality the 'Haritha KarmaSena' collects non-biodegradable wastes from houses to shredding units for recycling. Based on the findings derived we found that 80 percent of the households burned the plastic carry bags before the waste collection. 10 percent of them have dumped the waste into the ground. Only 5 percent of them used public waste pits. The study shows that plastic burning and dumping had got a considerable decrease since proper waste management methods were adopted. The findings of the study may open different paths in adopting proper scientific methods in plastic waste management techniques.

References.:

https://economictimes.indiatimes.com/news/india/india-recycles-only-30-per-cent-of-3-4-mt-plastic-wa

M016

SOCIO-ECONOMIC IMPACT OF PARTICIPATORY TOURISM AMONG THE TRIBES OF WAYANAD: EXPLORING OPPORTUNITIES FOR EMPOWERMENT AND SUSTAINABLE DEVELOPMENT

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Abstract: This research examines the socio-economic impact of participatory tourism on Wayanad tribes in Kerala, India. Wayanad, situated in the Nilgiri Biosphere Reserve and surrounded by national parks, boasts beautiful landscapes, diverse wildlife, and the Wayanad Wildlife Sanctuary. The primary objective of this research is to explore the potential benefits of participatory tourism for the tribal communities in Wayanad. The community's main source of income stems from labour in the agriculture sector, with crops such as coffee, pepper, and cardamom playing a significant role. However, this study aims to examine how the involvement of tribes in the tourism industry can create additional economic opportunities and foster empowerment. The research will analyse the socio-economic changes due to tribes participating in tourism activities in Wayanad. It will investigate the extent to which tribal communities have been integrated into the tourism sector and the impact of their involvement on income levels, employment opportunities, and livelihoods. The study will assess the social and economic empowerment experienced by the tribal population through their engagement with tourist destinations like Enn Ooru, and Kuruva Island and trekking locations such as Kattukunnu and Bramhmagiry. Furthermore, the research will examine the challenges and barriers faced by the tribal communities in participating in tourism and identify strategies to overcome these hurdles. The study explores limited resources, cultural preservation, equitable benefits, and environmental sustainability in participatory tourism among Wayanad tribes. It aims to inform policymakers and recommend inclusive tourism policies for sustainable development and cultural preservation.

References.:

Books: Tradition, Migration, and Transformation: Agrarian Migration to Wayanad a Socio-historical Pe

M017

THE SCIENTIFIC ASSESSMENT OF POND WATER: POTENTIAL USES, RISKS, AND IMPLICATIONS

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This research paper explores the multifaceted nature of pond water, examining its scientifically recognized uses and non-uses, along with the associated risks and dangers. The study emphasizes the importance of understanding the properties and characteristics of pond water for various purposes, including scientific research, irrigation in agriculture, and educational applications. Additionally, it highlights the potential health hazards and environmental concerns linked to the consumption, recreational activities, and domestic use of pond water. The paper concludes by emphasizing the significance of comprehensive scientific knowledge in preserving aquatic ecosystems, safeguarding human health, and protecting the environment.

M018

WASTE-TO-ENERGY CONVERSION: A SUSTAINABLE APPROACH FOR ELECTRICITY GENERATION

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This research paper presents an innovative concept known as "Trash to Electricity," which involves the conversion of waste materials into electrical energy. The study outlines the process of collecting waste from diverse sources and delivering it to a specialized facility for controlled incineration. The resulting heat generated from the incineration process is harnessed to produce electricity. Measures to mitigate environmental impact, such as the filtration of toxic emissions and the safe disposal of residual ashes, are also discussed. The paper highlights the significance of this waste-to-energy approach in reducing the reliance on water-based electricity generation methods, thus contributing to water preservation efforts

M019

IMPACTS OF AIR POLLUTION ON HUMAN HEALTH: A COMPREHENSIVE REVIEW

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This research paper provides an in-depth analysis of the adverse effects of air pollution on human health. The study focuses on the respiratory and cardiovascular implications resulting from the inhalation of polluted air. By examining the various mechanisms through which air pollution affects human physiology, the paper aims to enhance understanding of the multifaceted health risks associated with this pervasive environmental issue. Additionally, it emphasizes the urgency of implementing effective mitigation strategies to safeguard public health and promote a sustainable environment.

M020

AN INVESTIGATION INTO THE INTEGRATION OF TECHNOLOGY IN CLASSROOM LEARNING: STUDENT PERCEPTIONS AND EDUCATIONAL OUTCOMES

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This research paper delves into the exploration of technology integration in classroom learning and its impact on student perceptions and educational outcomes. The study aims to analyze students' perspectives on the use of technology in the classroom, examining their attitudes, engagement, and overall learning experiences. Additionally, the research investigates the relationship between technology integration and academic performance, exploring the potential benefits and challenges associated with its implementation. The findings of this study provide valuable insights for educators, policymakers, and researchers seeking to optimize the integration of technology in school settings.

M021

AN IN-DEPTH EXAMINATION OF THE FACTORS INFLUENCING SLEEP PATTERNS AND ACADEMIC PERFORMANCE: A COMPREHENSIVE RESEARCH STUDY

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This research paper presents a thorough investigation into the various factors that impact sleep patterns and academic performance among individuals. The study aims to identify and analyze the key determinants that contribute to disrupted sleep patterns, including both internal and external factors. Furthermore, the research explores the intricate relationship between sleep quality and academic performance, examining how sleep duration, sleep quality, and sleep hygiene practices affect cognitive functioning, memory consolidation, and overall academic achievements. The findings of this study provide valuable insights for educators, parents, and policymakers to develop effective strategies and interventions that promote healthy sleep habits and optimize academic outcomes

M022

EXAMINING THE INFLUENCE OF SOCIAL MEDIA ON ADOLESCENTS' MENTAL HEALTH: A COMPREHENSIVE RESEARCH STUDY

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This research paper aims to provide a comprehensive analysis of the impact of social media on the mental health of teenagers. The study investigates the intricate relationship between social media usage and various aspects of mental well-being, including psychological distress, self-esteem, body image, and symptoms of depression and anxiety. By examining existing literature and empirical studies, this research explores the potential mechanisms through which social media affects adolescents' mental health and identifies key factors that moderate this relationship. The findings of this study contribute to a better understanding of the complexities surrounding social media's influence on teenagers' mental health, highlighting the need

for targeted interventions and digital well-being strategies.

M023

INVESTIGATING THE IMPACTS OF BULLYING ON STUDENT WELL-BEING AND ACADEMIC PERFORMANCE: A COMPREHENSIVE RESEARCH STUDY

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This research paper examines the effects of bullying on student well-being and academic performance. The study investigates the multifaceted consequences of bullying, including its impact on psychological well-being, emotional health, social relationships, and educational outcomes. By reviewing existing literature and empirical studies, this research aims to provide a comprehensive understanding of the short-term and long-term effects of bullying. Furthermore, the paper explores the underlying mechanisms and risk factors associated with bullying and highlights the importance of prevention and intervention strategies to mitigate its detrimental effects. The findings of this study contribute to the knowledge base on bullying, informing educators, policymakers, and researchers on the significance of addressing this pervasive issue for student well-being and academic success.

M024

ALLEVIATING WILDLIFE ENCROACHMENT, WAYANAD AS A CASE STUDY

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Recently, wild areas of Kerala, especially the Wayanad district, have been facing a lot of encroachment of wild animals and it has become a common sight. The attack of elephants on crops, wild pigs, and felines attacking human settlements and human life are some examples. Food scarcity, territorial dominance, deforestation and water deprivation are some of the reasons for these encroachments. In this study we analyse how we can reduce the problem by methods like low-cost fencing, giving food supply in the forest, etc. taking Wayanad as a case study

Students' Presentation

High School Category

H001

ARTIFICIAL INTELLIGENCE ROBOT

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Abstract: Artificial intelligence (AI) is intelligence—perceiving, synthesizing, and inferring information—demonstrated by machines, as opposed to intelligence displayed by humans or by other animals. Example tasks in which this is done include speech recognition, computer vision, translation between (natural) languages, as well as other mappings of inputs.[1] AI applications include advanced web search engines (e.g., Google Search), recommendation systems (used by YouTube, Amazon, and Netflix), understanding human speech (such as Siri and Alexa), self-driving cars (e.g., Waymo), generative or creative tools (ChatGPT and AI art), automated decision-making, and competing at the highest level in strategic game systems (such as chess and Go).[2]
+

H002

AUTOMATIC DRIP IRRIGATION SYSTEM

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Abstract: AUTOMATIC DRIP IRRIGATION ,In this technology, the humidity and temperature of plants are monitored and controlled. Water is very precious to all living things. Most of fresh water is utilized for irrigation. By using drip irrigation required amount of water is supplied, if heavy water is supplied there are chances for crop failure . So, it is a challenge for the farmer to maintain the moisture in field. So a Microcontroller based drip irrigation mechanism is proposed, for monitoring and controlling all the activities of drip irrigation . Irrigation system controls valves are controlled by using automated controller to turn ON & OFF. This allows the farmer to supply required water ,even without any human effort. It improves crop performances and help in time saving in all the aspect and to provide the most proper condition of plant growth and to save water. Using an advance microcontroller LM3S5T36. A timer for the automation of drip irrigation isset, which works accordingly to the sensors and the flow of water in fields will be automatically controlled itself. It also contains the temperature and moisture sensor. Which are installed in the root zone. The soil moisture sensor is

connected to an irrigation system controller that measures soil moisture content in the root zone. Sensors are placed at least 5 ft from the downspouts to avoid high moisture areas. Tensiometer is used to detect moisture contents of soil. Once the soil has reached desired moisture level the sensors send a signal to valves

H003

BLACK HOLES

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Abstract: Black holes are one of the most magnificent objects in the universe. Black holes are formed when stars way more massive than our sun (at least 1.4 times larger than sun) implodes at a supernova explosion at the end of their lifespan (this is specifically, due to the inability to fuse iron). During this process, the mass of the black hole collapses into an infinitely dense, yet infinitely small point, called the singularity of the black hole, creating a strong gravitational pull, strong enough to not even let light pass across. Under this influence, the nebula and other heavenly bodies close to it are pulled towards its singularity. This movement of the hot gasses and other heated bodies towards the singularity in a spiral manner creates a luminous disc around the black hole, commonly termed as an accretion disk. As the black holes do not allow light to escape, this accretion disk is what we commonly take as a sign for blackholes. Beyond the accretion disk is a point of no return, the eventhorizon. Any body traveling beyond the event horizon will either have to have a speed faster than light to escape the gravitational pull of the black hole or it will be spaghettified into the singularity (according to the present research findings). Some types of black holes (also termed as 'stupendously large black holes') are also debatably the largest bodies in the universe. Currently, the largest black hole is the 'Phoenix A' in the Phoenix cluster.

References.:
1. https://en.wikipedia.org/wiki/List_of_most_massive_black_holes 2.https://news.uchicago.edu/explai

H004

EPIGENETICS

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Abstract: Epigenetics is the study of how your behaviours and environment can cause changes that affect the way your genes work. Unlike genetic changes, epigenetic changes are reversible and do not change your DNA sequence, but they can change how your body reads a DNA sequence. While genetic changes can alter which protein is made, epigenetic changes affect gene expression to turn genes "on" and "off." Epigenetics deals with changes in gene expression not resulting directly from mutations of DNA sequences, which lead to the formation of inherited traits both intra-generationally and inter-generationally. Disorders in the intrauterine environment contribute to the formation of epigenetic modifications and affect the development of the foetus. Types of epigenetic changes include DNA Methylation, Histone modification and Non-coding RNA. Epigenetic

H005

MODERN COMPOST PIT

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Abstract: Project Title- Modern Compost The main aim of our project is to prevent the use of harmful fertilizers & develop a resourceful way to recycle food scraps and manage school waste more sustainably. This also made the children of our school aware of the natural decay of organic waste. • Some details and information about compost prepared by us, are given below-: Compost is the crumbly mass of rotted organic matter made from decomposed plant material, used in gardening and agriculture. Compost is especially important in organic farming, where synthetic fertilizers are not permitted. Compost improves soil structure, provides a wide range of nutrients for plants, and adds beneficial microbes to the soil. The maximum benefits of compost on soil structure (better aggregation, pore spacing, and water storage) and on crop yield usually occur after several years of use. Compost can be prepared on a small scale for home gardens, usually in a simple pileof yard waste and kitchen scraps, though compost bins and barrels are also used. Aeration is important for proper decomposition, so piles are usually mixed every few days. When properly prepared, compost is free of obnox-

ious odors. A compost pile with the right ratio of carbon to nitrogen (30:1) and with adequate moisture will produce enough heat during decomposition to kill many pathogens and seeds, though it is advisable to avoid adding diseased plant matter and weeds that have gone to seed. Some municipalities collect household yard waste for large-scale composting, which reduces the amount

References.:

https://1drv.ms/w/s!AjfuTCyRTnJthVRxbGcS85xPR4yD

H006

QUANTUM COMPUTING

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Abstract: Have you ever wondered what the future of computing might look like? Quantum computing is a rapidly developing field that uses the strange rules of quantum mechanics to perform calculations in a completely new way. Unlike classical computers that use bits, which can only exist in one of two states (0 or 1), quantum computers use qubits, which can exist in multiple states at once. This property, known as superposition, allows quantum computers to perform many calculations simultaneously, thus making them much faster than classical computers for certain problems. But that's not all. Another key feature of quantum computing is entanglement, which allows qubits to be connected so that the state of one can affect another, even if they are far apart. This enables complex operations and increased computational power. So what does this all mean? Quantum computing has the potential to revolutionize fields like cryptography, optimization of complexsystems such as transportation networks and financial market, drug discovery, and material science. By harnessing quantum mechanics, researchers hope to develop new algorithms and technologies to solve problems beyond the reach of traditional computers. This research provides a comprehensive introduction to quantum computing principles, including qubits, superposition, and entanglement. It also explores potential applications and implications for various industries. By delving into this emerging field, the research contributes to our understanding of quantum computing and its significance in advancing science and technology.

References.:

https://www.pnas.org/doi/abs/10.1073/pnas.191373698

H007

WHY STUDENTS TEND TO HESITATE TO ANSWER IN CLASS

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Abstract: This research is based on the behaviour of students, prevalent across the globe. The education system is evolving to be more interactive, but the class groups are still dependent on the mass psychology of the group. A study conducted in a school in Ernakulam showed that active classrooms have students who are ready to open up and debate about issues, while passive classrooms consist of students who are self-conscious and are not ready to answer or debate in class. This suggests that the education system is evolving to be more interactive, but the class groups are still dependent on the mass psychology of the group. This study examined the behaviour patterns of four divisions from an entire standard. Teachers asked general questions and rhetorical questions, and in the case of languages, students were asked to summarise parts of the lesson. The outcome showed that almost all students hesitated to answer, save a few. The research will answer questions about how the behaviour patterns of the students are demographically affected, how the group behaves under stress or at leisure, the division of the group based on religion, ethnicity, race, and how the development of the thought process is affected by factors such as health, environment, and social dynamics. The goal is to gain a comprehensive understanding of the groups behaviour patterns and identify any potential areas for improvement or intervention.

References.:
Li, L. et al. (2021) Young children conform more to norms than to preferences [online]. Available fr

H008

CATTAIL ECHOES ECOSYSTEM: A SUSTAINABLE DEVELOPMENT

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Abstract: Cattail plants are dime a dozen in rural areas. But,we generally turn a blind eye

to them growing in unused marshes.This project is an initiative to look into the many-folded values of these cattail plants. -In todays world a glaring problem is the depletion of the ground water level and global warming.The scarcity of ground water will cause a great problem in getting clean drinking water and water to be used in agricultural lands and other household purposes.But,these cattails can be used for reducing the contaminants in waste-water and making it reusable.Cat-tails can be used as a bioresource to produce blow-in insulation and bio-composite renewable materials.As of now, approximately 1900 patents are registered for manufacturing cattail-based insulation materials(schwemmer,2010).This resistance is due to the microscopic dead air-cells that are present within thematerial, which suppress convective heat transfer. We want to make use of cattails in our laboratory as temperature reducer, waste & rain water purifier so that water can be used in our school garden. Cattails also have medicinal advantages like preventing anaemia, diabetes, hypertension etc.If we cultivate cattails to a great extent and use them as a part of business, then we can get rid of the financial frustration and unemployment.Cattails in marshes form a miniature of eco system which people should be made aware of.So,cattails can pave the way for an eco-friendly sustainable development in near future.

References.:

1. https://cleantechnica-com.cdn.ampproject.org/v/s/cleantechnica.com/2013/06/14/cattails-as-buildin

H009

IMPORTANCE OF AGRICULTURE IN SCHOOLS

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Abstract: IMPORTANCE OF AGRICULTURE IN SCHOOLS Nature destroyed due to globalization and capitalism. Modern people fail to appreciate the beauty of nature and its necessity in our lives. Children these days are spending more time with mobile and video games instead of playing outdoors.They have forgotten how to mingle with the nature around them. And this is why I wish to introduce agriculture as a period in our schools. As we all know agriculture is the backbone of our country. In earlier days, children engaged in farming due to their circumstances that exist in their home. Thats why our headmaster decided to cultivate different kind of vegetables in the school. And that has helped us better understand

the parts of the plants and its health benefits. And above all, farming is a skill that will bring us happiness,sustenance,hard work and the fruit of goodlabour, helping us take a step close to nature day by day.

References.:
Science Text Book of Std 3&4

H010

E - CALENDAR

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Abstract: E - CALENDAR A chart only showing the days, weeks and months of a year and a schedule of coming events. If someone looks at an ordinary calendar we have to look and search carefully the day or date schedule plans etc especially in morning when we are in a hurry. Another version of this project already exists in the form of an App on our personal digital devices. But this too comes another problem smartphone is for personal use and move over. Peering on the phone can be harmful to the eyes. This problem can be solved on a bigger screen. A number of problems regarding people with chronic disease - forgetfulness have been solved through the calendar app in our personal devices like smartphone or laptop. When it comes to our project, we can quickly identify today's date or day. If today is 3rd Wednesday the LED - Light Emitting Diode-will be turned on there. Each day is identified by a particular colour. Now we made a prototype with three colours for 3 days toidentify Sunday, Monday and Tuesday. There will be a small LCD - liquid crystal display that will scroll to catch our attention for that day's special plans or events (reminder). We can set or type the special events in LCD for reminder Talking about its advantages - it is a device that can be used by all people at any time and kept in any place. Thanks

References:
ATL, Calicut Girls Vocational & Higher Secondary School.

H011

CoDe: COLLISION DETECTOR

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Abstract: CODE: COLLISION DETECTOR Problem Statement Were very familiar with boat accidents. A lot of precious lives are lost due to such accidents. Some of the reasons for boat accidents are overcrowding and rapid climate change. This leads to the turning over of the boat. To prevent this, were introducing our project "CoDe" Infographic About Boat Accident Drowning is the 3rd leading cause of unintentional injury death worldwide, accounting for 7% of all injury-related deaths. There are an estimated 236000 annual drowning deaths worldwide. The Tanur boat accident occurred on the evening of 7 May 2023, caused 22 deaths and 10 injuries including 11 children. Overview of the Project When the boat is overloaded, the weight sensor detect the overload. At the same time the buzzer makes sound until the weight is limited. when the boat is tilted more thana limit, the moist sensor detect the water level and tries to make the boat at a balanced state by using a balancer. When the boat is met with an accident, an alert is send to the neighbouring ports or light houses with the help of alert system. Thanks.

H012

ENHANCING GAS SAFETY: SENSOR-ACTIVATED ALARM SYSTEM FOR TIMELY DETECTION AND ALERT OF GAS LEAKAGE

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Abstract: The release of gas poses a significant risk, capable of resulting in severe and potentially fatal calamities. Nonetheless, it is conceivable that effective preventive measures can be implemented. One potential solution involves the utilization of a sensor affixed to or in

close proximity to the gas cylinder, coupled with an alarm system. In the event of gas leakage detection, the alarm would promptly activate, alerting individuals within proximity to take immediate action in halting the escape of gas. Furthermore, in scenarios where no occupants are present to address the situation, the system would initiate communication via mobile devices, thereby potentially safeguarding numerous lives if executed with due diligence.

References.:
https://www.researchgate.net/publication/332435967_Detection_of_Gas_Leakage_and_Automatic_Alert_Syst

H013

METAL-ORGANIC FRAMEWORK

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Metal–organic frameworks (mofs) are fabricated by linking inorganic and organic units by strong bonds (reticular synthesis).one type of solid-state material that has received an enormous amount of attention in recent years.comprises the metal–organic frameworks (mofs). The flexibleness with that the constituents, geometry, size, and functionality could be varied has resulted to more than 20,000 different mofs being reported and studied within the past decade. at the start of the chapter a brief overview, kinds of ligands and various methods for synthesis of mofs are described. the unique feature of mofs led to a crucial issue to many applications in which mofs are promising candidates. multiphoton absorption, shockwave chemistry, electronic and vibrational properties of mofs, novel pva/mof nanofibers, synthesis of amine-functionalized mofs discussed here. owing to their three dimensionality and high porosity, metal-organic frameworks (mofs).this had attracted the attention of scientists especially chemists and material engineers. The class of highly porous materials called metal–organic frameworks offer many opportunities for applications across biology and medicine.

H014

CANCERSCOPE - SOLVING CANCER TO SAVE THE WORLD

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Abstract: Our idea introduces a groundbreaking application for early cancer detection that aims to revolutionize healthcare.This highlights the transformative potential of the application in cancer diagnosis and treatment. By prioritizing early detection, the project aims to save lives and improve patient outcomes. The comprehensive approach, considering environmental and lifestyle factors, represents a paradigm shift in healthcare, promoting proactive and personalized patient care. The project consists of three stages with specific objectives to save lives through timely intervention. Stage 1 : collecting environmental and lifestyle data from patients, such as air quality, radiation levels, and alcohol consumption. This data is compared to a comprehensive cancer database, enabling accurate prediction of cancer with a self developed AI model and facilitating early intervention. Stage 2 focuses on securing funding and developing proprietary testing kits for cost-effectiveness and self-sustainability. The expansion of the workforce enables nationwide coverage, increasing the applications reach. Stage 3 emphasizes mass production of testing kits and partnerships with hospitals and government organizations to ensure accessibility, particularly in underserved areas. The aim is to bridge healthcare disparities and extend life-saving opportunities to all. In conclusion, this abstract presents an innovative application for early cancer detection. Through its three-stage implementation plan, the project aims for significant advancements in preventive healthcare, saving lives and improving patient prognosis. The applications potential to transform healthcare and its reach make it a critical tool in the fight against cancer, ushering in a new era of proactive intervention.

References.:

https://www.cancerresearchuk.org/about-cancer/cancer-symptoms/why-is-early-diagnosis important#:~:te

H015

AGRARIAN CULTURE OF THE FORTIES –AN INVESTIGATION THROUGH THE SHORT STORY "KARKIDAKAM".

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Abstract: The relationship between man, nature and soil is very deep. The biosphere depends on the interdependence between man and nature. But we are going through a situation where a separation has developed in the relationship between these three. We have forgotten the Earth... we have forgotten ourselves. Today there is no reflection of the old period. Today's generation does not have much desire to know about it. The way I have taken to understand about man, agriculture and nature is to read stories that have an agricultural background. Among the many stories I have read, the most acceptable I found is "Karkidakam" a story written by M.T Vasudevan Nair. The aim of my study is to find out from this story a reflection of the situations in the past. Here are some of the things I discovered after reading this story again and again – The village life of Kerala, half a century ago can be read in this story with all its specialties. Even during the day,in the month ofthe Malayalam month,"Karkidakam", the black shadow of darkness would hang over the Earth, many households would be impoverished due to the reduction of work related to agriculture, and there would be less money to buy commodities from the shops and more to take from the compound itself. After searching the internet and reading stories and later putting everything together, I realized that back then, agriculture was an integral part of human life.

References.:

Karkidakam, a short story written by MT Vasudevan Nair,https://www.manoramaonline.com/literature/lit

H016

SCHOOL NUTRITION GARDEN AS TOOL FOR STEM EDUCATION AND CONSERVATION OF INDIGENOUS SPECIES AND BIODIVERSITY: A CASE STUDY AT JHARGRAM DISTRICT, WEST BENGAL

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Abstract: The Mid-Day Meal (MDM) Scheme, now renamed PM POSHAN is a programme in India designed to support the nourishment of primary and upper primary students at government schools. The School Nutrition Garden (SNG) has been sanctioned as a part of the MDM programme to produce nutritious vegetables for use in the MDM. The SNG has been set up at the Govt. Model School, Gopiballavpur-I in two designated areas, which can be used as the powerful STEM instructional component for the students of the secondary section. The SNG area is used by the students for the study of environmental studies, soil science, agriculture, and simple businesseconomics. We hypothesize that students at our school have little practical knowledge of the above subjects due to the lack of hands-on training in the field. This SNG also found application for the conservation of the indigenous variety of vegetables and biodiversity of the area. The West Bengal Board of Biodiversity supplied us with 14 indigenous varieties of vegetable seeds for our school for use in the SNG and set up a seed bank for the spread of these varieties in the local community. A baseline data obtained by the preliminary survey among the students about environmental studies, soil science, biodiversity, and basic home economics and the final survey data after hands-on training and experience may be helpful for the educators, administrators, and future research work.

References.:
1)https://en.wikipedia.org/wiki/School_garden#:~:text=Students%20learn%20about%20local%20food,incorp

H017

NUTRITIONAL GARDEN FOR ACHIEVING SUSTAINABLE DEVELOPMENT GOALS (SDGS): SCHOOL CENTRIC APPROACHES FOR COMMUNITY INVOLVEMENT

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Abstract: This proposal highlights that how Nutritional gardens can help in improving the nutritional security also generate small but constant source of income, especially for women. The involvement of women and children will be able to raise vegetables and fruits in backyard in a systematic manner. Nutritional garden provides a continuous supply of nutritious vegetable for the table throughout the year, which are safe and secured. . Agriculture is a fundamental human activity that intrinsically depends on nature and at the same time poses a threat to it. Thus, sustainability has emerged as a necessity in future agricultural policy and practice. Sustainable agriculture will need first and foremost to consider two inseparables, intertwined societal priorities – preserving the environment and providing safe and healthy food for all. It will be necessary for all sectors and stakeholders involved in the food system and nature conservation to find a common path for the future which embraces these two priorities. Our children can develop an interest and enthusiasm for nature, climate change, environmental issues, and preserving the environment through early ecological education. We have a higher chance of generating a generation of lifelong environmental activists who will continue to live sustainable lives into adulthood if we foster this passion at a young age

References.:

Kumari Shubha, Anirban Mukherjee,Shreya Anand, Tanmay Kumar Koley and Ujjwal Kumar 2020. Nutri-gard

Students' Presentation

Special Category

O001

ASSESSMENT OF PERCENTAGE WATER CONTENT IN COMMON FRUITS

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Abstract: In varying degrees, the fruits, and vegetables that we eat contain water. It can have a significant impact on their taste, texture, and nutritional value of the fruit. Fruits and vegetables typically contain a high percentage of water, ranging from 70-95% depending on the type of produce. This water content is essential for maintaining the cellular structure and overall health of the plant, but it also affects the quality of the food we eat. The objective of this study is to determine the water content of some common fruits. The fruits were sliced into thin pieces and wet weight was noted. Allowed to dry. Dry weight was noted repeatedly until no change. The percentage weight of water was calculated. Repeated with different fruits and done in triplicates/ Understanding water content can help you make more informed decisions about the fruits you consume and how to prepare and store it.

O002

CARTOON MOVIES AS A TOOL FOR ENVIRONMENTAL AWARENESS IN THE CHILDREN

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Abstract: Going out for a stroll in nature has been integrated into the routines of people from all walks of life. Encouraged by health professionals worldwide, interactions with nature have been introduced as stress-relieving techniques for a variety of conditions such as autism and Down syndrome in recent years. For example, in horticultural therapy, the fresh air, sunlight, greenery, and breeze provide a pleasant sensory experience for these individuals. To develop awareness and appreciation for the nature that surrounds us, we sought to explore

avenues through which children can gain an understanding of their environments. In addition, with climate change becoming a more prevalent topic of discussion in today's society, this awareness would help to encouragedevelopment of their unique goals in addressing this global issue. Interestingly, cartoons have been a vivid source of entertainment influencing children over the course of many generations. However, the studiesregarding the influence of cartoon series to the children on environmental issues are currently unavailable. Spreading the environmental awareness to the younger generation using cartoons as a medium has not been attempted. In this background, we explore the capacity of this form of media in depicting environmental factors in an effort to encourage environmental awareness to children. We attempted to assess the environmental considerations in the animation movie, The Incredibles, by determining the natural scene/backgrounds presented in a randomly selected 2 min segment. The findings revealed frames with tree backgrounds appeared 22 times in the specified segment. Hence, by including more sequences that portray the

References.:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7037774/

O003

DETERGENTS IN HANDWASH LIQUIDS DELAY SEED GERMINATION AND DEVELOPMENT

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Abstract: The covid 19 pandemic has led to an extraordinary surge in the demand and use of handwash products. This has led to serious environmental concerns. Soaps and detergents from handwashing products are released to sewage and finally to the environment. Our earlier studies have shown that handwash liquids can adversely affect the quality of water. This study aims to assess the effect of different handwash liquids on seed germination and plant growth. Pea seeds were allowed to germinate by soaking in hand wash liquid in varied dilutions and observations were recorded. Seed germination and plant growth were negatively impacted by high concentrations of handwash liquids. The impact of handwash liquids on the environment is attributed to the presence of detergents in them. Need for biodegradable and sustainable cleaning methods is emphasized in this study.

O004

DIFFERENCE IN THE INTENSITY OF SUNLIGHT IMPACTS THE GROWTH AND DEVELOPMENT OF PEA PLANTS

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Abstract: Plants need sunlight to grow and produce flowers and fruits. Sunlight is important in plant growth because the heat and the light required by all growing plants are supplied by solar radiation. The study aims to assess the effect of sunlight in the growth and development of pea plants. Seeds were germinated in darkness and allowed to develop at 3 different locations. The seed germination did not require sunlight, while plant growth was reduced when in dark. The quality and the quantity of the sunlight transmitted to growing plants are both dependent upon atmospheric conditions, as well as upon the season of the year. They vary from place to place and from month to month. Both quality and quantity of incident light can have drastic impacts on photosynthetic activity and hence plant growth. Understanding the optimum light conditions for a plant growth is important.

O005

ECOTOXICOLOGICAL EFFECTS OF TOOTHPASTES ON SEED GERMINATION AND SEEDLING DEVELOPMENT

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Abstract: Oral health has significant impact on the quality of life. This emphasizes the need for safe, effective, and economical toothpastes in the market. Toothpastes have antibacterial properties and reduce the occurrence of plaque. The main ingredients of toothpastes are fluoride, abrasives, and detergents. The additives in toothpastes may have possible toxic effects. Our earlier studies have shown that toothpastes altered the chemical and physical parameters of water. The aim of this study was to assess the ecotoxicological effects of toothpastes on seed germination and seedling development. Green gram Seeds (Vigna radiata) were soaked in serially diluted toothpaste solution and observations were compared with a control (water).

Variations in the development of seedlings were also recorded. Studies showed delayed seed germination in tooth paste treated groups compared to the control group. The shoot development and seedling growth also stunt by the presence oftoothpaste. The study concludes that higher concentrations of toothpastes may pose serious toxic effects on ecosystem, when not used wisely. The findings from this study warrants a detailed and extensive study on the ingredients and associated health risks of toothpastes.

O006

EFFECT OF DIFFERENT FISH FOODS ON COLORATION OF GUPPIES

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Abstract: Color is one of the major factors which determine the price of the ornamental fish in the world market. The color of fish skin is primarily dependent on chromatophores that contain pigments such as melanins, carotenoids, pteridines, and purines. Fish do not possess the ability to synthesize carotenoids. The carotenoid pigmentation of fish results from the pigment present in the diet. Many reports have demonstrated that the skin color change over time depending on the level of carotenoid in the diet and differed among species. Aim of this study was to understand the effect of different fish foods on the coloration of guppies. Guppies were allowed to grow in small tanks and fed with different store bought fish foods. The changes in color and growth of the guppies were noted. The findings showed that fish foods rich in plant pigments presented better coloration and growth.

O007

EXPLORING THE HABITAT AND ECOLOGICAL IMPORTANCE OF SPIDERS

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Abstract: Spiders are practically everywhere, in most of the continents except Antarctica. It has its own importance in the whole ecosystem and thus an important biological indicator. Also, spiders do many good deeds for humans, as they are extremely vital for agriculture and horticulture. Exploring more about the habitats of spiders and its importance, will be help-

ful in the conservation process. The aim of this study is to explore and identify the different varieties of spiders found in specific areas and to study their food habits and ecological importance. An area was selected and explored for the presence of spiders. Different types of spiders were identified from a very small area. The study concludes that spiders are very abundant in an undisturbed natural environment.

O008

EXTRACTION OF PIGMENTS FROM DIFFERENT PLANT SOURCES

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Abstract: Pigments of various kinds and forms are used as additives or supplements in the food industry, cosmetics, pharmaceuticals, livestock feed and other applications. However, because of the problems of the synthetic pigments that cause toxicity and carcinogenicity in the human body, the use of them is gradually has decreased. Therefore, interest in natural pigments, that can replace synthetic ones, which cause many side effects, is increasing. Plant pigments include a variety of different kinds of components, including anthocyanins, carotenoids, betalains and chlorophylls. The aim of this study is to extract plant pigments from different sources using different solvents. The samples were cleaned and crushed using mortar and pestle and soaked in the specific solvent to allow the extraction of the pigment. The extracts were concentrated and stored for further studies. Carotenoids, anthocyanins and chlorophyll were extracted in this manner. Extraction and identificationof plant pigments might lead to their application as natural colorants in multiple areas.

O009

MILD SALINITY PROMOTES SEED GERMINATION IN PEAS

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Abstract: Rising soil salinization is an emerging and major source of degradation of arable land. High salinity affects nearly 10% of soils and 50% of irrigated land in the world. Furthermore, high salt environments can greatly inhibit seedling growth and yield in salt-sensitive

crops. Seedling emergence constitutes the most critical stage in the life cycle of plants. In general, high soil salinity inhibits seed germination due to the low osmotic potential created around the seed, which prevents water uptake. In addition, high concentrations of sodium and chloride ions in the soil may be toxic to seeds. Seedling emergence in a saline environment does, however, provide a practical and convenient assay to investigate the extent of seed sensitivity to salt. In this study, effect of different concentrations NaCl on germination of pea seeds was examined, to determine which concentrations of salt would not interfere with process of germination of seeds in given plant.2.5g Sodium chloride wasdissolved in 10 ml of water and serially diluted(?=2) to 6 tubes. Pea Seeds were weighed and soaked in NaCl solution for 24 hours. The seeds were taken out, wet weight was taken and photographed. The study concludes that an optimum concentration of sodium chloride promotes germination in pea seeds.

O010

QUALITY ANALYSIS OF POTABLE WATER FROM DIFFERENT SOURCES

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Abstract: Clean water is essential for every human being, for drinking, cooking and other daily uses purposes like bathing, brushing, washing clothes etc. It not just makes our life healthier but also fulfills the hygiene purpose. The regular tap water being supplied in might seem clear but possess various sorts of health-affecting bacteria and viruses and contaminants such as fluorine compounds, chlorine, mercury, lead, pesticides and other types of waste particles. Water testing determines water quality and whether it is acceptable or unfit for human consumption. Water samples from 4 different sources were collected in clean bottles. Bottled mineral water was used as control. Physicochemical analysis of the samples was done to check the quality of the water. The water samples were assessed for the presence of fluoride, chlorine, sulfate, calcium, hardness etc. Samples were tested for the presence of E coli also. The hardness of water differed for each sample. pH and TDS of the samples alsoshowed significant changes depending on the source of sample collection. The study showed that potable water from different sources have different levels of hardness. The pH and total dissolved solid levels also vary significantly. This indicated that the quality analysis of potable water is very important.

O011

SMART COLLECTIVE & INCLUSIVE FARMING

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Abstract: Smart Collective & Inclusive Farming Kayeli Giri ,Aparupa Bairagi ,Anjali Das, Soumili Maity, Sakira Khatun ,Bandana Das and Rrupali Mal Corrponding Author: Dr. Amales Misra Paribesh Unnayan Parishad Sagar Island , Sundarbans, S. 24 Parganas Pin 743373 Mail ID amargram.pupa@gmail,com Mobile 9002497090 ABSTRACT Collective & Inclusive Farming: Experimenting with a new kind of SUPPORT SYSTEM for the community by inculcating the habit of self-help by collective and inclusive farming involving children and Women with the farmers, this is designed with an objective of "SELF RELIANCE?" Revival of traditional Varieties of Paddy: The area is prone to cyclone and flood, which are experienced by the people every year causing damages to houses and all other infrastructures, particularly agricultural fields. Farmersrealised now the importance of traditional varieties of paddy, which have the capacity to tolerate climatic vagaries, but the seeds are not available as per demand. The livelihood of the area under consideration (Coastal Island) is mainly agriculture oriented (paddy, vegetables, livestock, fishery etc), having several problems, like lower level of production, saline soil, lack of soil testing facilities, non-availability of traditional varieties of seeds (well adjusted to local environment), easy availability of chemicals (fertilisers and pesticides) for indiscriminate use by the farmers not guided by the experts. Natural Farming: Natural Farming offers a solution to all the above problems, and also helps in achieving food security, safety and good health; by eliminating pesticide and fertilizer residue in food and water, global warming, climate change and natural calamities.

References.: 1. Das Sunita; Mitra P. & Misra A., 2018.

O012

EDVENTURE

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Abstract: "Edventure" a travel project conducted by students of St. Thomas Higher Secondary School Pala, aimed to explore the diverse educational systems across India. This abstract

provides an overview of the Edventure project, highlighting its objectives, methodology, key findings, and the impact it had on the participating students. The primary objective of Edventure was to gain first hand insights into the various educational systems prevalent throughout India. The students embarked on a journey spanning different regions of the country, visiting schools and educational institutions representing public, private, and alternative systems. Through participant observations, interviews, and interactions with students and educators, the project aimed to understand the strengths, challenges, and unique aspects of each system. The methodology employed during the project allowed the students to immerse themselves in the educational practices of diverse regions. Theyobserved different teaching methodologies, curriculum frameworks, and extracurricular activities, providing them with a comprehensive understanding of the educational landscape in India. The students discovered unique approaches to education, innovative teaching techniques, and the significant role of cultural and regional influences. They also recognized the challenges faced by various systems, such as resource constraints and disparities in access to quality education. Participating in Edventure had a profound impact on the students. It broadened their perspectives, fostered cross-cultural understanding, and enhanced their appreciation for the diversity within Indian education. The project ignited their curiosity, stimulated critical thinking, and inspired them to explore innovative solutions for educational challenges. This was a journey for deconstructing the concepts of education.

Students' Presentation

Selected Projects from STEM4E Challenge

S4E001

SCHOOL NUTRITION GARDEN AS A TOOL FOR THE STEM EDUCATION AND CONSERVATION OF INDIGENOUS VARIETY OFVEGETABLES FOR THE SUSTAINABLE DEVELOPMENT OF THE SCHOOL & THE COMMUNITY AROUND KAMLASOLE VILLAGE OFJHARGRAM, WB.

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School Nutrition Garden (SNG) is a part of the Mid-Day Meal Scheme (MDM) in West Bengal. The SNG has been sanctioned in two demarked areas in the premises of Govt. Model School, Gopiballavpur-I, Jhargram with the support of the District and Block Administration to produce nutritious vegetables for use in the MDM. It has been used as a powerful STEM instructional component for students. It can be used as an important component in the STEM curriculum for middle school and secondary school students. The purpose of this study is to present the progress of the SNG in terms of soil testing and preparation for the sowing of seeds of the indigenous variety of vegetables according to the season and suitable for the area and the climate. This includes the sowing of seeds and nurture of the plants under the supervision of a team of students with the application of water through low-cost drip irrigation and compost from the school campus. The final survey among students through a questionnaire for evaluation of their learning during this process. Statistical analysis of the survey data from the students may be used for the determination of the success of the project. Through hands-on experience the student's, the development of psychomotor skills will be enhanced which in turn helps to develop the cognitive /knowledge of the individual.

S4E002

AI BASED PREDICTION OF DEFORESTATION RATE USING GOOGLE EARTH

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Deforestation continues to be a significant environmental concern with far-reaching implications for biodiversity loss, climate change, and socio-economic stability. Accurate prediction of deforestation rates is crucial for effective policymaking and conservation efforts. With the advancements in artificial intelligence (AI) and remote sensing technologies, researchers have increasingly turned to AI-based approaches for predicting deforestation rates. In this research paper, we present an innovative approach to forecasting deforestation rates by leveraging artificial intelligence and data sourced from Google Earth. Our study focuses on utilizing image processing techniques to analyze images obtained through Google Earth, employing machine learning algorithms implemented with Python programming on Raspberry Pi hardware. This project aims to accurately determine the deforestation rate and enable the prediction of complete forest loss, along with its consequential adverse effects. Ultimately, our findings can empower policymakers to develop effective strategies for reducing deforestation and promoting afforestation.

S4E003

CATTAIL ECHOES ECOSYSTEM: A SUSTAINABLE DEVELOPMENT

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Abstract: Cattail plants are dime a dozen in rural areas. But,we generally turn a blind eye to them growing in unused marshes. This project is an initiative to look into the many-folded values of these cattail plants. -In todays world a glaring problem is the depletion of the ground water level and global warming. The scarcity of ground water will cause a great problem in getting clean drinking water and water to be used in agricultural lands and other household

purposes.But,these cattails can be used for reducing the contaminants in waste-water and making it reusable. Cat-tails can be used as a bioresource to produce blow-in insulation and bio-composite renewable materials. As of now, approximately 1900 patents are registered for manufacturing cattail-based insulation materials(schwemmer,2010). This resistance is due to the microscopic dead air-cells that are present within the material, which suppress convective heat transfer. We want to make use of cattails in our laboratory as temperature reducer, waste & rain water purifier so that water can be used in our school garden. Cattails also have medicinal advantages like preventing anaemia, diabetes, hypertension etc.If we cultivate cattails to a great extent and use them as a part of business, then we can get rid of the financial frustration and unemployment. Cattails in marshes form a miniature of eco system which people should be made aware of. So,cattails can pave the way for an eco-friendly sustainable development in near future.

References.:

1. https://cleantechnica-com.cdn.ampproject.org/v/s/cleantechnica.com/2013/06/14/cattails-as-buildin

S4E004

HARNESSING RAINWATER: RAINWATER HARVESTING (RWH)

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Our school New Guwahati Adarsha High School is in North East India. We have heavy rains starting from June till October during the monsoon months. This causes severe floods and water logging. Our school needs water to drink, clean our toilets, maintain our garden and for cooking the daily mid-day meals. Our water supply comes from the nearby railway colony. When we see heavy rain during the monsoon months, we discuss in our class that a lot of water gets wasted. We have noticed that our school and nearby houses have sloping roofs. We have done some studies to understandhistorical data of rainfall in our area. Through this project we want to come up with an idea on how to use the rain water to meet the needs of our school. Rainwater harvesting (RWH) is an important method of storing and using water.

S4E005

ECOTOXICOLOGICAL EFFECTS OF TOOTHPASTES ON SEED GERMINATION AND SEEDLING DEVELOPMENT

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Oral health has significant impact on the quality of life. This emphasizes the need for safe, effective, and economical toothpastes in the market. Toothpastes have antibacterial properties and reduce the occurrence of plaque. The main ingredients of toothpastes are fluoride, abrasives, and detergents. The additives in toothpastes may have possible toxic effects. Our earlier studies have shown that toothpastes altered the chemical and physical parameters of water. The aim of this study was to assess the ecotoxicological effects of toothpastes on seed germination and seedling development. Green gram Seeds (Vigna radiata) were soaked in serially diluted toothpaste solution and observations were compared with a control (water). Variations in the development of seedlings were also recorded. Studies showed delayed seed germination in tooth paste treated groups compared to the control group. The shoot development and seedling growth also stunt by the presence of toothpaste. The study concludes that higher concentrations of toothpastes may pose serious toxic effects on ecosystem, when not used wisely. The findings from this study warrants a detailed and extensive study on the ingredients and associated health risks of toothpastes.

S4E006

PEST CONTROL IN VANILLA PLANIFOLIA USING WILD PLANTS

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One of the main issues the farmers face in spice crops is the attack of pests. The usual policy the farmers seek to resist the pest is the use of insecticide available in the market, which is

harmful to soil and health. They can be monitored to use an alternative method to control the pests, which is innovative and easily available . Can we not invent some insecticides prepared organically which are not harmful to health and are naturally available in abundance to these small scale farmers? The farmers used neemleaves (Azadiraachita indica, tulsi-ocimumtenuiflorium sheemakkonna-glicireediasepium and some other leaves. Due to its unavailability in abundance, depend on market products Whycan't we have a different choice for vanilla was the question that came up in the discussion of our team. Beans of vanilla planifolia is used directly to flavor in cooking. Market based pesticide thus reaches directly to the body ruininghealth.. The observation on the plants that grew along with the vanilla plants were very informative.The following wild plants that were alongside the spice crops of pepper vanilla and cardamom grew luxurious.They were resistant to pests. The Plants under our observation were the following 1.Putharichunda-solaniumindicum family solanaceae 2 Wild tobacco-lobelia nicotianeaefolia 3 Wild castor oil plants-jethropha gossipipilfolia-familyeuphorbiace. This observation gave us this insight.These wild plants can be used to control the attack of vanilla plants,making an extract of these plant leaves,either using it as a mixture or applying itseparately.

S4E007

DOMESTIC WASTE WATER TREATMENT UNIT

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This project can be very useful in our household for the purification of water System comprises 8 steps that yield the best result when properly executed and can be made in a lower budget. The main objective of our project is to make a working model using the principle of sewage treatment. The main aim of our project is to achieves the best use out of waste water without even wasting a tiny droplet of water by the process of preparation and sedimentation which if implemented in household could be very useful and also help in the process of recycling which is a very effective method for conservation and protection of our environment.

S4E008

REPLACEMENT OF PLASTIC CUTLERIES BY AN EBO PRODUCT: EDIBLE CUTLERY

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Plastics are synthetic polymers generated from rapid industrialization which contains toxic substances like di-2(-ethylhexyl)phthalate, bisphenol A and polyhalogenatic chemicals, all of which are carcinogenic in nature. These days, the food-counters are also using plastic cutleries. Globally, 640-billion units of plastic cutlery are utilized every year. The utilization of plastic products has beyond-description losses like air pollution caused by pyroletic-conversion of plastic wastes as it releases polyaromatic hydrocarbons, CO2 and contaminants such as dioxins in environment. Another impact is the pollution of marine environment as Nonylphenol, polychlorinated biphenyl and pesticides including bisphenol A, polycyclic aromatic hydrocarbons, dichloro-diphenyl-trichloroethane and polybrominated-diphenyle-ethers are the harmful substances found in marine plastic wastes. Also, micro-plastics damage the internal organs of poor animals when they consume it and it chokes their throat and leads to their death. It also harms humans by reaching us through the food chain of bioaccumulation. We consume these hormone-impersonating chemicals through the sea food, meat and products which rife with micro-plastics and this leads to severe health impacts like- obesity, reproductive-abnormalities, cardiovascular-alterations, diabetes, celiac-diseases, cancer and coronary heart disease. This aimed to assess the replacement of plastic cutleries. A suitable substitute is “EDIBLE CUTLERY” made up of plant-based products also known as EBO (eco-friendly, bio-degradable and organic). The major purposes for having edible cutlery as a replacement are bio-degradability and eco-friendliness. It will also help to achieve the Sustainable Development Goals by ensuring healthy lives and well-being for all (SDG-3) and taking urgent action to combat climate changes and its impacts (SDG-13).

References.:

1. https://www.researchgate.net/publication/355473712_Edible_Cutlery_-_Publishedpdf_by_Goutam_Roy_Ch

S4E009

TRAFFIC NOISE POLLUTION AROUND ANJENGO FORT IN KERALA AND ITS POSSIBLE IMPACT ON HUMAN HEALTH

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Abstract: Noise pollution affects the physical and mental health of people living in excessive noise pollution areas. According to the World Health Organization, noise is the second largest environmental pollutant after air pollution impacting human health. At Anjengo, our village, we have noticed that vehicles passing the sharp curves around the historical Anjengo Fort are overly honking.Does this traffic noise cause pollution with more than 80 decibels? The purpose of this research is to assess the noise produced by the traffic at the curves of the Anjengo Fort. Researchers have positively correlated noise pollution with human health. Our literature review shows that traffic noise pollution heavily impacts physical and mental health. Therefore, in our observational study of traffic noise production using a decibel meter, we measurethe noise intensity on the road and inside the roadside houses.Our analysis of the data will help us to determine the level of noise pollution and the possible impactson health of people living around and of those road users. This study isexpected to seeksome effective ways to control and eliminate traffic noise pollution at Anjengo Fort.

References

1. Hiral J. Jariwala,Huma S. Syed, Minarva J. Pandya,Yogesh M. Gajera., "Noise Pollution & Human Health: A Review". https://www.researchgate.net/profile/Hiral-Jariwala/publication/319329633_Noise_Pollution_Human_Health_A_Review/links/59a54434a6fdcc773a3b1c49/Noise-Pollution-Human-Health-A-Review.pdf
2. Ganiyu, S. A. and Adedeji, Y. M. D., "A Study of the Sources of Noise Pollution and their Impacts on the Built Environment". https://www.researchgate.net/publication/308640301_A_STUDY_OF_THE_SOURCES_OF_NOISE_POLLUTION_AND_THEIR_IMPACTS_ON_THE_BUILT_ENVIRONMENT
3. Wahied Khawar Balwan, Neelam Saba., "Impact Of Sound Pollution On Animal And

Human Health".
https://www.researchgate.net/publication/349316573_IMPACT_OF_SOUND_POLLUTION_ON_ANIMAL_AND_HUMAN_HEALTH

4. Reeta Singh, Dipesh Raj Pant, Resham Baniya., "Traffic noise pollution assessment along the Ring Road of Kathmandu Valley, Nepal.
https://www.researchgate.net/publication/363542666_Traffic_noise_pollution_assessment_along_the_Ring_Road_of_Kathmandu_Valley_Nepal

5. Noise pollution is a major problem, both for human health and the environment
https://www.eea.europa.eu/articles/noise-pollution-is-a-major#:~:text=In%20fact%2C%20according%20to%20some,air%20pollution%20(particulate%20matter).

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