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# EARTH ROOT

**MAKING BRICKS FROM  
MEZCAL AND TEQUILA**

**WHAT LESSON DOES PLASTIC MAN  
TEACH US ABOUT SAVING THE  
ENVIRONMENT**

**A SUSTAINABLE WAY OF  
CELEBRATING  
FESTIVALS**

**LET'S BREAK THE  
CHAIN!**

**CLIMATE CHANGE  
AND MENTAL  
HEALTH**

**ABANDONED MINE TURNED INTO  
INDIA'S LARGEST MAN-MADE  
FOREST**

**'30 years of blah blah'**

# About E-magazine

“Earth Root” is an open access e-magazine in the discipline of Environmental sciences published by Earth Root Foundation. The aim of the e-magazine is to provide information and upgradation of knowledge about environmental issues on wider scale and to share ideas and resources to the readers. Using essential knowledge people can lead a healthy life, which is more sustainable and can connect with ongoing efforts for stopping catastrophically the climate change. E-magazine caters to all related environmental aspects ranging from big issues like climate change, renewable energy and pollutants in the atmosphere to the health of human and living beings on Earth. We also take topics of water resources and efforts and measurement to provide optimum use of it; including large scale atmospheric circulation linked with oceans and ecology.

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# LET'S BREAK THE CHAIN!

~ Rajasvee  
Kamala Nehru College, Delhi University

Diwali is the most beloved and widely celebrated Indian festival. It is the festival of lights, where people adorn their homes by lighting diyas and hanging lights. The atmosphere is infused with a sense of belonging and warmth during the celebration. It's a delightful emotion to savour, and it makes Diwali a lovely celebration to cherish. It also symbolises the 'victory of light over darkness'.

However, amidst all this, we face a major challenge every year that affects not only one's physical health but also the environment. The use of crackers in Diwali celebrations is a new-age tradition that poses a significant environmental danger. It causes severe air and noise pollution, and waste, affecting everyone from animals to humans.

Despite the government's prohibition on firecrackers, every year around Diwali, thousands of firecrackers are set off across the country. Despite the fact that people are aware of the dangers of firecrackers, they continue to use them. Anyone who comes into touch with firecrackers is in grave danger since they are exceedingly dangerous and contain chemicals. The fireworks smoke includes hazardous particulate matter that may readily enter the lungs, and the gases produced, such as magnesium, nitrate, and lead, can cause shortness of breath and other health issues. Cities such as Delhi, which are already suffering from poor air quality, become intolerable. Even the animals aren't spared. Furthermore, the firecracker industry engages in child labour for production, exposing children to harmful chemicals and leaving them in precarious environment.

It's time that we, as concerned citizens, start taking initiatives at making our society a better place because government's measures aren't sufficient without our support. Lets celebrate this diwali with eco-friendly materials and without fireworks. Let's break the chain!





# MAKING BRICKS FROM MEZCAL AND TEQUILA

~ Deepika  
Freelance Writer

Your eyes are not deceiving you. You read it right the first time! When we put our mind to it we can accomplish anything. Time and again has proven this statement true.

Mezcal and Tequila are alcoholic drinks that the world seems to relish. But not many people know that these smooth drinks after they are extracted tend to leave lots of solid and liquid waste behind which has a great deal of harmful effects on the environment and people as well. When one bottle of Mezcal is produced, 12 kg of solid waste and 10 bottles worth of liquid waste is produced. SO MUCH WASTE! To tackle this problem the owner of Sombra Mezcal contacted Alejandro Montez Gonzalez and his organization, COAA. The organization was studying how to make this waste into a useful product. They had been working on it for the past five years already and had made eco-friendly bricks when the head of Sombra Mezcal approached them.

The bricks made up of the waste product of these drinks have proven to be four times more flexible than the traditional bricks. The bricks made have been donated by the company to Harp Helu foundation to construct homes for the local people of Oaxaca, Mexico. Richard Betts, the mind behind Komos Tequila, has all the intentions to move towards the goal of zero waste.



All mezcals are made from agave plants; tequila is made from one particular species—the blue agave—while smokier mezcals are made from one of the other 150 agave species native to Mexico.

He also has taken part in this new venture of making bricks from the waste generated during the manufacturing of Tequila into making environment-friendly bricks.

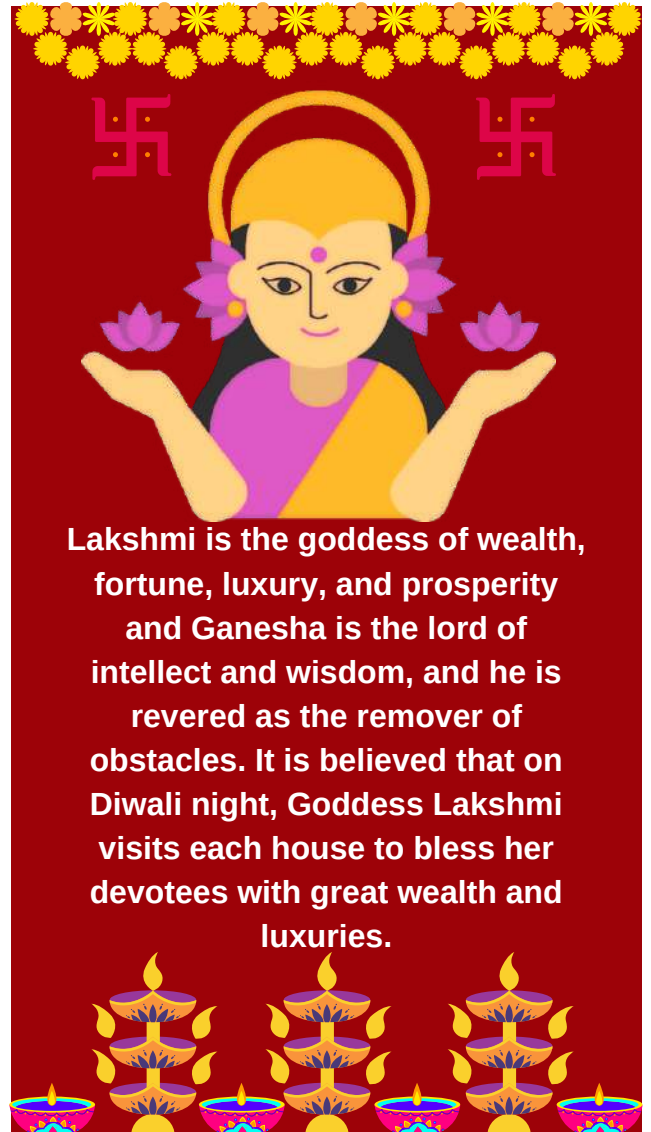
Recently, Kendal Jenner also stated that her tequila brand 818 Tequila is also making bricks out of the waste agave fibre and donating them back to the society of Jalisco for abode making. Alcohol has been consumed for ages and people will continue to do so, so to make this industry a little more environmentally affordable we must come up with innovative strategies and share them with the world just like this brilliant brick-making idea.

# THIS DIWALI, LET'S GO BACK TO OUR ROOTS

~ Rajasvee  
Kamala Nehru College, Delhi University

Diwali, a festival of lights, is celebrated joyously throughout the country and in some other parts of the world. The Diwali season is by far the most beloved time of the year. It's fascinating to see how the same festival celebrated is tied to a variety of religious themes. Although Diwali is celebrated by Hindus, Jains, Sikhs, and Buddhists, it commemorates distinct historical events and tales for each sect.

Diwali honours King Rama, one of the deity Vishnu's avatars. When a wicked king of Lanka, kidnaps Rama's wife, Sita, he gathers an army of monkeys to rescue her. Diwali in the south is often associated with a myth about the Hindu god Krishna, a different avatar of Vishnu, who saves 16,000 women from another malevolent monarch. The New Year in Gujarat coincides with Diwali, and Diwali is connected with seeking prosperity from the goddess Lakshmi for the following year. Nonetheless, the holiday symbolizes the triumph of light over darkness, knowledge over ignorance, and good over evil.



Another thing that's common is the way it was celebrated in the traditional or ancient sense. Cleaning the houses and workspaces and then decorating them with flowers, diya and lights were how it was celebrated before. Distributing and sharing sweets with our near and dear one's was the tradition back done. Needless to say, it used to be a warm and light celebration.

However, the tradition has slightly changed in recent times, with the invention of firecrackers. Firecrackers and Diwali have now become inseparable. Even though firecrackers are harmful to our health and the environment, we continue to mindlessly use them. Let's go back to our simple roots and try to celebrate this Diwali pollution-free.

# CLIMATE CHANGE AND MENTAL HEALTH

~ Ritika Sen

GGSDS College, Chandigarh

**"Mental health is like a season if it blooms then happiness, if it rains then stress."**

Climatic changes have an adverse effect on the health of people. It affects both physical and mental health in equal amounts. Whenever a climate change happens a lot of chaos occurs which eventually starts deteriorating the mental health. Climate change and disasters cause mental health issues like anxiety, depression and other severe mental disorders.

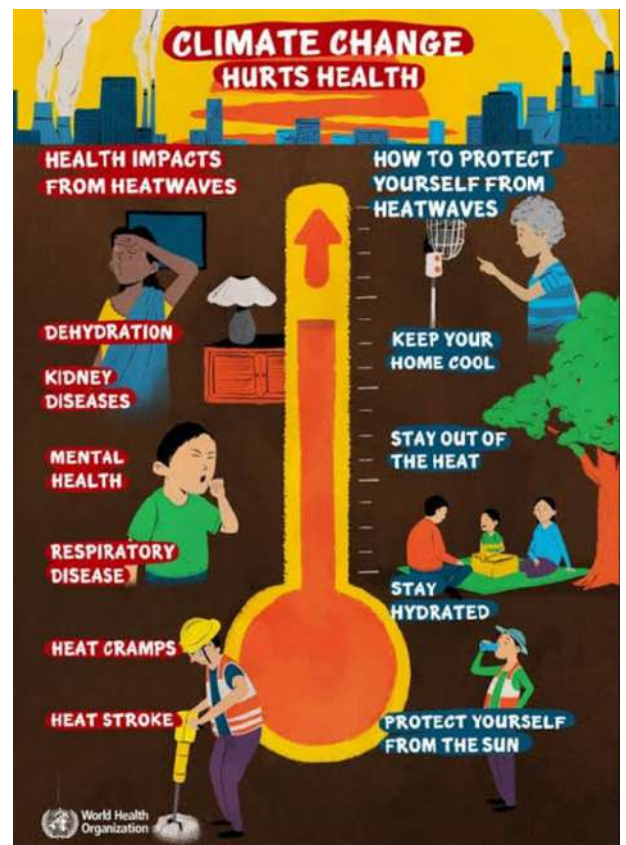
The people getting most affected due to the climatic change scenario are children, elders, persistently ill people, pregnant and postpartum women, people with cognitive impairments, and people with mental illnesses. People such as migrants or having lower socioeconomic status also get adversely affected due to the changing climatic condition.

Climate change is not a short term phenomenon but its after effects are more vulnerable as the time passes. Severe climatic changes lead to poverty, population migration, unemployment, starvation, drought, lack of social support, and disturbed mental health.

According to a report 25 to 50% of people who have been exposed to a massive disaster are at risk of unpropitious mental health effects. The same report also says that about 54% of the adults and 45% of children experienced mental health issues like anxiety, traumas and phobias after a natural disaster.

To lessen the adverse consequence of climate change on our mental health, one should remember the following -

- Being aware about the feelings
- Not panicking and losing any kind of hope
- Trying out to make a plan to ensure safety
- Learning about the triggering points
- Being involved with the community all around





# THE NEED TO PRESERVE THE CORAL REEFS

~ Sarthak Mishra  
Freelance writer

Coral reefs are actually a colony of living animals called coral. Corals have a symbiotic relationship with 'zooxanthellae' microscopic algae that live on them. Zooxanthellae assist the coral in nutrient production through its photosynthetic activities. They also provide colouration to them. Coral is made up of layers of limestone skeletons covered ultimately by tiny living animals called polyps. Andaman and Nicobar Islands are among the four major reef areas of India. These islands are found to be very rich in species diversity.

Coral reefs mostly occur in shallow tropical areas where the seawater is clean, clear and warm. They are one of the most productive and complex coastal ecosystems with high biological diversity. They are classified depending upon their locations into fringing, patch, barrier and atoll. These reefs are natural protective barriers against erosion and storm surge. Coral Reefs are also the largest biogenic calcium carbonate producer and provide substrate for mangroves.

When the water heats up, corals become stressed and they expel the tiny algae called dinoflagellates that live in their tissue. With their algae gone, the coral polyps could still feed by plucking morsels out of the water, but their metabolism slows down. They ultimately become weak and more vulnerable to diseases.



According to the World Coral Reef Status Report, the world lost about 14% of the coral on its coral reefs between 2009 to 2018. This lost amount is equal to the 11,700 square kilometres of coral in Australia. There were many other past events like 1998 coral bleaching which killed eight percent of the world's coral. However, the increase in global coral cover in 2019 offers some hope.

The warming of the oceans has impacted coral reefs significantly, and the continuation of this warming will further destroy the reefs. We need to somehow halt ocean warming through global cooperation so that coral reefs and the entire marine ecosystem can be revitalised.



## Trapped earth in Greenhouse

-Khushi Kaushik

Have you ever seen the process of baking biscuit inside a microwave. Well it's gonna be us inspite of biscuit in future.

The given cartoon depicts the one of the real reason behind the rising temperature on our planet and yes don't forget it's just a small glimpse of whatever is coming for us....



# A SUSTAINABLE WAY OF CELEBRATING FESTIVALS

~Gauri

Sanjay Godawat International School, Kolhapur, Maharashtra

We all know we have been waiting for festivals to bring joy and spend the relaxed, ideal days with our family and loved ones. India is a prosperous country that has an abundance of festivals with different cultures. Diwali is one such festival that has different interpreted meanings behind it. But the joy, prosperity and flourishing moments it brings is delightful.

Sustainability is not just to follow for a moment or for a certain time frame, instead, it's a lifestyle, it's a life choice an individual makes. What can we do for this Diwali to make it more of a conscious celebration? Let's emphasize celebrating a noise-free Diwali. Noise is disturbing, while a sound is pleasing. Instead of having a fire-cracker night, spending time with family, with karaoke, would create more memories without leaving behind any harmful by-product. However, one can also use green crackers. Green crackers, designed in 2020 causes 30% less pollution than the traditional crackers. They are smaller than the usual ones. Research shows it has reduced sound pollution from 160 decibels to 125 decibels. Even though green crackers are 20% more expensive than the traditional ones, they help in the long run.

Lanterns are the one that makes a house look like home. Creating lanterns with old sarees and clothing pieces will be more fun and sustainable. Diyas are lit to weaken those evil forces in all the corners of the house. At the moment traditional Diyas made by artists, replaced by plastic ones, underestimate the work and efforts of Diyas made with passion and creativity. Gifts could also be wrapped in paper packaging instead of plastic. It seems like a small step, however it will create a lasting impact for the future generations.

The most essential and exciting part which everyone looks forward to is clothing. Festivals are always associated with new clothes. As humans, we always associate new beginnings with changes in our physical appearance. Let's make this Diwali more sustainable by consuming sustainable fashion. There are many stores that support sustainability and have made their mission statement to achieve sustainable goals. For instance, H&M, Zara, etc.

All of this will only work if we choose sustainability as a lifestyle rather than a trend. Let's bring more awareness to our everyday consumption and make this Diwali a unique grand celebration for us as well as for the future generation

## How to Celebrate Eco-Friendly Diwali 2021?

- Switch to Eco-Friendly Crackers
- No to Plastic Lights, Yes to Diyas
- Make Organic Rangoli
- Upscale your Waste, Upgrade your Home
- Gift from Heart, not from Stores



# ABANDONED MINE TURNED INTO INDIA'S LARGEST MAN-MADE FOREST

~Shivani Sharma  
Freelance Writer

The government of Chhattisgarh is planning to build the country's largest man-made forest near Raipur. Creating a natural habitat on 2,500 acres of barren terrain of primarily abandoned and non-operational mines. Nandini mines in Durg district, some 55 kilometres from the capital, would be one of India's greatest ecological restoration projects.

According to PCCF, P.C. Pandey, the initiative will most likely take a comprehensive shape in the coming years. The continuing project is anticipated to be used to transform 3,777 acres of barren and mined-out land into a natural jungle habitat. So far, the government has converted 1,120 acres of the region into forest areas. The approach would not only cut pollution but also rejuvenate the area's ecosystem by adding a touch of green and striking a balance with the environment.



**Nandini forest will be the biggest man-made forest in India.**

The United Nations Decade on Ecosystem Restoration served as a source of inspiration for this action plan. The man-made forest is being carried out by using the Japanese technique known as Miyawaki. A revolutionary concept centred on environmental preservation. This strategy aids in creating thick, self-sustaining native forests, where plants grow 10 times quicker than traditional methods because of their natural, multi-layered nature. The approach entails planting two to four trees per square metre, with the seedlings ready to self-sustain in two to three years.

Nandini forest's future plans include transforming the region into an open jungle safari like the ones in Africa, as well as promoting the location as eco-ethnic tourism. This will include landscaping, water sports promotion, and stay-in cottages. Approximately 44% of the state's territory is covered in forest areas.

In Chhattisgarh, there is no deficiency of abandoned mines with little substantial reclamation being done. They're usually composed of dolomite-limestones, and they produce massive water reservoirs within the forest. In addition, due to the massive wetlands in the area, the region acts as a great refuge for birds. According to reports, the projected cost of the project is estimated at around Rs 3.37 crore.



# 30 YEARS OF BLAH BLAH BLAH

~Nirupama Sai

Sri Venkateswara College, Delhi University

Image source: [www.seznamzpravy.com](http://www.seznamzpravy.com)



Greta Thunberg, a Swedish youth activist campaigning against climate change had recently been invited to speak at the Youth4Climate event in Italy, where she gave a thundering but sceptical speech on the hypocrisy and inaction of world leaders towards climate change.

Back in August, the United Nations released the IPCC report which highlighted how Climate change is widespread, rapid, and intensifying, and some trends are now irreversible, at least during the present time frame. The alarming nature of the report and the visible effects of climate change and global warming this past year has led many people to become more aware of the debilitating crisis that is leading our planet to destruction. Speaking on how

an action must be taken instead of empty flashy words and dialogues, Greta Thunberg stressed that, "There is no planet B ... Change is not only possible but necessary but not if we go on like we have until today."

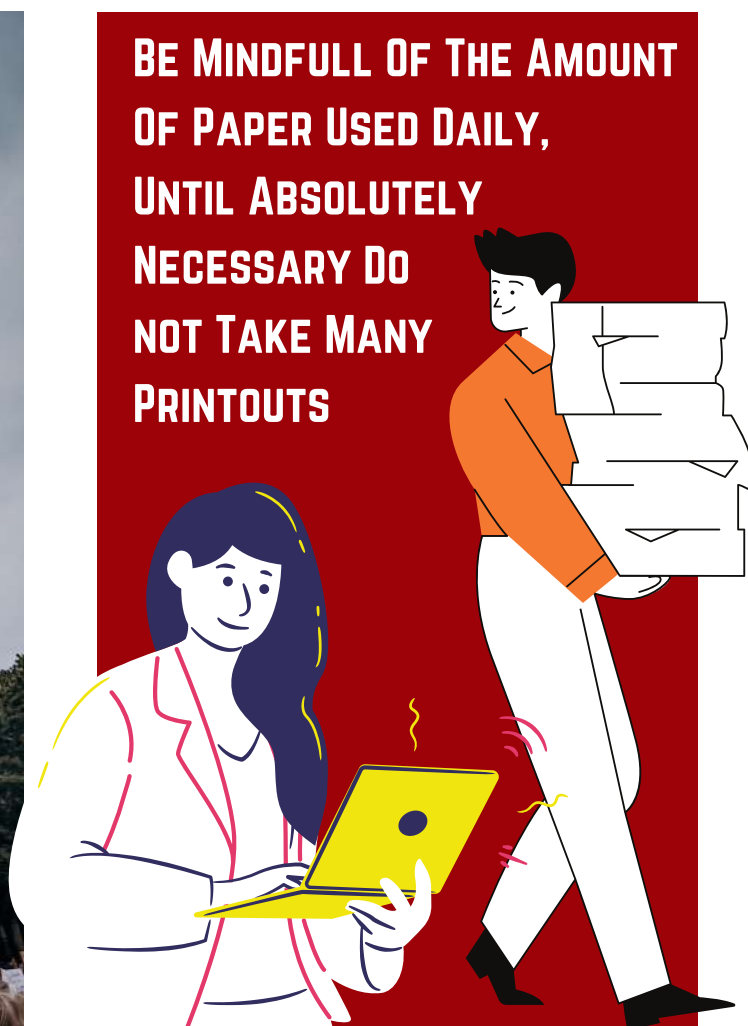
She mocked world leaders, their dishonest promises and failure to tackle global warming, and in her speech, she criticised them for making youngsters dream of big things like a green economy and many other lucrative promises since the last 30 years, ever since the landmark 1992 Rio de

Janeiro Earth Summit. She alleged that these world leaders 'cherry-picked' youngsters for high-profile summits, propagating an image about their concern for the future, but their negligence has only confirmed that they are apathetic to these issues.



Image source: [teenvogue.com](http://teenvogue.com)

Mentioning that science did not lie and our emissions are rising, Thunberg echoed with the IPCC experts say that strong and sustained reductions in emissions of carbon dioxide (CO<sub>2</sub>) and other greenhouse gases, could quickly make air quality better, and in 20 to 30 years global temperatures could stabilize.



Concluding her speech, Thunberg insisted that it is only action and not procrastination that can change the current situation of the world and that it is time we take the action instead of those with power. Her speech comes before the COP26 Climate Summit in Glasgow, UK on 31st October wherein countries that signed the 2015 Paris Agreement must deliver their pledges and limit their emissions to 1.5 °C.



# WHAT LESSON DOES PLASTIC MAN TEACH US ABOUT SAVING THE ENVIRONMENT?

~ Sahithya Balakrishnan  
Hindustan Institute of Technology and Science, Chennai

Modou Fall, a 52-year-old citizen of Dakar and president of the “Sénégal Propre”, an association that fights against using plastic waste, has been interested in environmental issues since 2005. One day, he decided to tell the public about the dangers of plastic waste. He believes that despite being banned in 2020, the real threats of single-use plastic products have not been realized by the world. Seeing the invasion of plastic waste in Senegal, he is determined to spread awareness.

## DID YOU KNOW?

### India too has a plastic man.

Rajgopalan Vasudeven, a 73-year-old Madurai-based retired chemistry professor, came up with the concept of repurposing plastic waste to create long-lasting roads. He was named as one of the 73 recipients of the Padma Shri, the government's fourth highest civilian honour.



Called the “Plastic Man”, Fall wears a costume made of plastic bags that drags to the ground and a note attached to his chest, which reads “no plastic bag”. In local markets and public gatherings, he collects plastic bags from people. In return, he hands them a paper bag to use instead.

Seeing the efforts of Plastic Man, it is easy to see that every small step we take towards a cleaner environment will contribute to a pollution-free future. So let us learn from Modou Fall, by stopping the use of plastic waste and stating the use of eco-friendly alternatives.

The Plastic Man is actively and eagerly working to make his hometown a clean place. He does so by raising awareness about the harm that plastic waste does to the environment. He helps educate the masses by conducting awareness campaigns and teaching Senegalese to transform tires into gardening materials.



**Invest  
In  
Bamboo  
Toothbrush**



# A PROSPEROUS DIWALI

~Deepika  
Freelance Writer

If lord Rama came Ayodhya,  
And the year is 2021,  
Would the Lord be truly happy?  
Will this Diwali be a prosperous one?

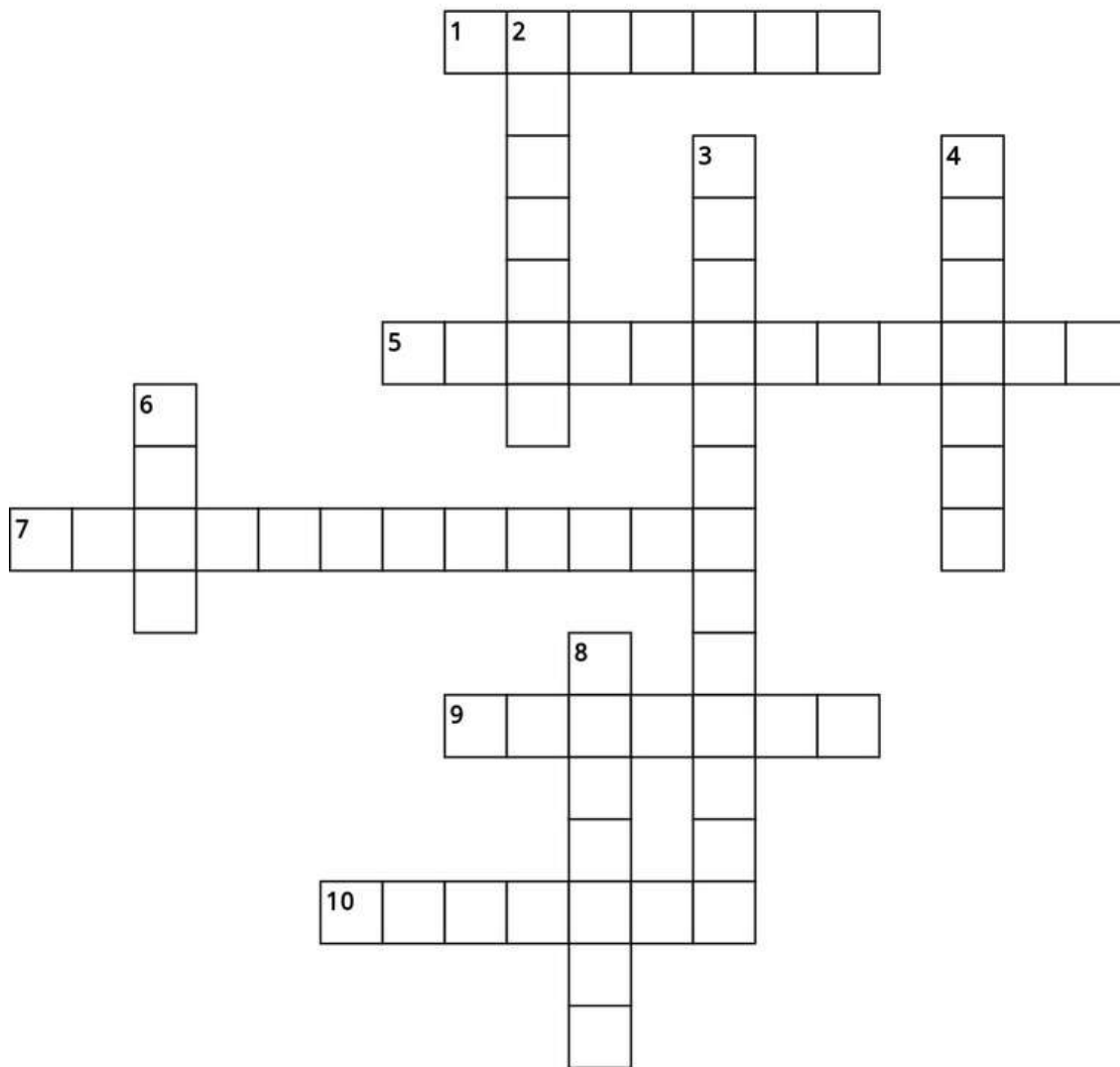
The fumes of the crackers will suffocate their return,  
Their shining eyes will lose their glow,  
Seeing the suffering of the injured one,  
Be it humans, plants and helpless animals;

Watching the mother earth dying a slow and painful death,  
Lord's heart will be in agony,  
This pain will be far greater than leaving their home,  
Will their return be worth the victory and hardships they endured?

Let's make our ancestors proud,  
And devote ourselves for a greater cause,  
Let's celebrate Diwali without hurting others,  
Playing safe and sharing blessings with others will make this Diwali a prosperous one.



# CROSS WORD



## Across

- 1) Creates electrics through heat; low risk to the environment  
 5) This type of resource is NOT bad for the environment and it comes from the sun(2 words)  
 7) The law of \_\_\_\_\_ of energy  
 9) The average weather for a region over a long time period  
 10) This is found as a gas and it makes your grill run

## Down

- 2) To use again  
 3) Resource that exists in a fixed amount  
 4) an upward current of warm air, used by gliders, balloonists, and birds to gain height  
 6) Uneven heating of the Earth's surface can cause this  
 8) A organic matter that can be used as an energy source

# RANGOLI COMPETITION

The Earth Root Foundation will be organising a virtual Rangoli Competition on the auspicious occasion of Diwali.

## Guidelines:

- Date: 4th November 2021
- Theme: The design of the rangoli should be related to environment and environmental awareness.
- The participants are encouraged to use eco-friendly materials and have full creative liberty.
- Submission: The entries should be posted online, on the participants' social media (Instagram, Twitter Facebook & LinkedIn) by tagging "Earth Root Foundation".
- The entries should be posted on the day of the competition itself, late entries won't be considered.

शुभ दीपावली! HAPPY DIWALI!



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