SCIENCE, TECHNOLOGY & INNOVATION FOR A CLEAN, GREEN & HEALTHY NATION

Sub Theme

SOCIETY, CULTURE AND LIVELIHOODS

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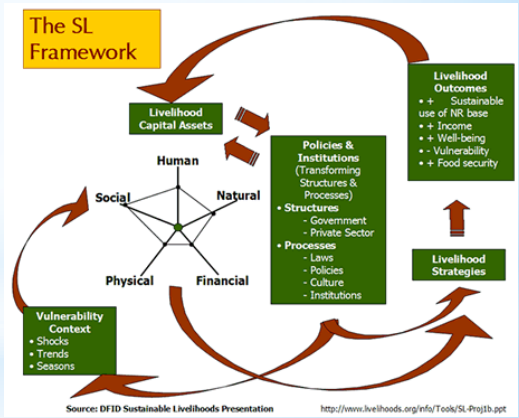


Introduction

A **community** is a small or large social unit (a group of living things) that has something in common, such as norms, religion, values, or identity.

CULTURE & COMMUNITY

The changes in the patterns of livelihood - towards skills, sensitivity, habits, behavior, economy and culture.

Environmentally friendly or **environment-friendly**, (also referred to as **eco-friendly**, **nature-friendly**, and **green**) are sustainability and marketing terms referring to goods and services, laws, guidelines and policies.

Cultural dimensions of climate change impacts and adaptation

Society's response to every dimension of global climate change is mediated by culture. We analyse new research across the social sciences to show that climate change threatens cultural dimensions of lives and livelihoods that include the material and lived aspects of culture, identity, community cohesion and sense of place. We find, furthermore, that there are important cultural dimensions to how societies respond and adapt to climate-related risks. We demonstrate how culture mediates changes in the environment and changes in societies, and we elucidate shortcomings in contemporary adaptation policy.

Ref. Nature Climate Change **volume 3**, pages 112–117 (2013)

Achieving a climate justice pathway to 1.5 °C

It is vital for climate justice to pursue a pathway to zero carbon emissions by 2050 to limit global temperature rise to 1.5 °C above pre-industrial levels and to minimize the adverse impacts of climate change on people and their human rights. But can such a pathway be achieved without undermining human rights and restricting the right to development? This Perspective discusses the risks of action and inaction to identify a fair and just transition. It compares the risks posed to human rights from climate impacts with the risks posed by climate action and suggests that rights-informed climate action can maximize benefits for people and the planet.

Ref. Nature Climate Change **volume 8**, pages564–569 (2018)

Livelihood resilience in the face of climate change

The resilience concept requires greater attention to human livelihoods if it is to address the limits to adaptation strategies and the development needs of the planet's poorest and most vulnerable people. Although the concept of resilience is increasingly informing research and policy, its transfer from ecological theory to social systems leads to weak engagement with normative, social and political dimensions of climate change adaptation. A livelihood perspective helps to strengthen resilience thinking by placing greater emphasis on human needs and their agency, empowerment and human rights, and considering adaptive livelihood systems in the context of wider transformational changes.

Ref. Nature Climate Change **volume 5**, pages 23–26 (2015)

Social tipping points in global groundwater management

Groundwater is critical to global food security, environmental flows, and millions of rural livelihoods in the face of climate change[1]. Although a third of Earth's largest groundwater basins are being depleted by irrigated agriculture[2], little is known about the conditions that lead resource users to comply with conservation policies. Here we developed an agent-based model[3,4] of irrigated agriculture rooted in principles of cooperation[5,6] and collective action[7] and grounded on the World Values Survey Wave 6 ($n = 90{,}350$). Simulations of three major aquifer systems facing unsustainable demands reveal tipping points where social norms towards groundwater conservation shift abruptly with small changes in cultural values and monitoring and enforcement provisions.

Ref: Nature Human Behaviour **volume 1**, pages640–649 (2017)

Carbon-focused conservation may fail to protect the most biodiverse tropical forests

As one of Earth's most carbon-dense regions, tropical forests are central to climate change mitigation efforts. Their unparalleled species richness also makes them vital for safeguarding biodiversity. However, because research has not been conducted at management-relevant scales and has often not accounted for forest disturbance, the biodiversity implications of carbon conservation strategies remain poorly understood. We investigated tropical carbon–biodiversity relationships and trade-offs along a forest-disturbance gradient, using detailed and extensive carbon and biodiversity datasets. Biodiversity was positively associated with carbon in secondary and highly disturbed primary forests. Positive carbon–biodiversity relationships dissipated at around 100 MgC ha^{-1}, meaning that in less disturbed forests more carbon did not equal more biodiversity. Simulated carbon conservation schemes therefore failed to protect many species in the most species-rich forests. These biodiversity shortfalls were sensitive to opportunity costs and could be decreased for small carbon penalties. To ensure that the most ecologically valuable forests are protected, biodiversity needs to be incorporated into carbon conservation planning.

Ref: Nature Climate Change (2018)

A scientific project is a systematic study of problem carried out to find a rational solution to the problem. It involves :

- Definition of the problem
- Making hypothesis
- Observation
- Collection of data
- Data analysis
- Drawing conclusion & Proposing solution

Preliminary checklist

The Project idea
The time frame proposed
Is it manageable?
What subject could be integrated into the project?
What technical tools, if any, will you use?

Steps to successful

Step 1: Involve your students from the beginning.
Step 2: Break down the topic into well defined tasks.
Step 3: Plan well, get goals, define outcomes.
Step 4: Divide your class into working groups with well defined topics.
Step 5: Create a tangible artifact as an outcome.
Step 6: Arrive at a conclusion.
Step 7: Document and present to a public audience.

A study on the role of medicinal species in your locality

Your text here

Neem leaf is used for leprosy, eye disorders, bloody nose, intestinal worms, stomach upset, skin ulcers, diseases of the heart and blood vessels (cardiovascular disease), fever, diabetes and liver problems.
The leaf is also used for birth control.

The flower is additionally used in hair care as a preparation.
It can also be used as a pH indicator. When used, the flower turns acidic solutions to a dark pink or magenta color and basic solutions to green.

Introduction

Medicinal plant species refer to species of plants which have more than one medicinal Value. Such species are highly important in the context of achieving the goal of sustainable Healthy world.

Objective:

- To identify and document various available medicinal plant in a certain locality.
- To identify and analyze the document different uses of the available plant.
- To observe the document different cultural and traditional practice and beliefs that are related to the use and measurement of these species.
- To evaluate the economic as well as socio-cultural benefits of the species.
- To find out any management optional approaches needed for maintaining the species along with any threats towards their availability.

Methodology:

- Selection of the study site/locality
- Transect walk based observation to identify various medicinal plants available in the study area
- Literature survey and inventorisation of available knowledge for scientific documentation of the species available.
- Observe, analyze and document various socio-cultural benefits of those medicinal plants.
- Document any potential threat to the availability of these medicinal plants.
- Experimentation for innovative approaches for value addition, production system management etc

Project - 2

IDENTIFY THE MATERIAL FOR DEFLURIDATION

Normal

Questionable

Very mild

Mild

Moderate

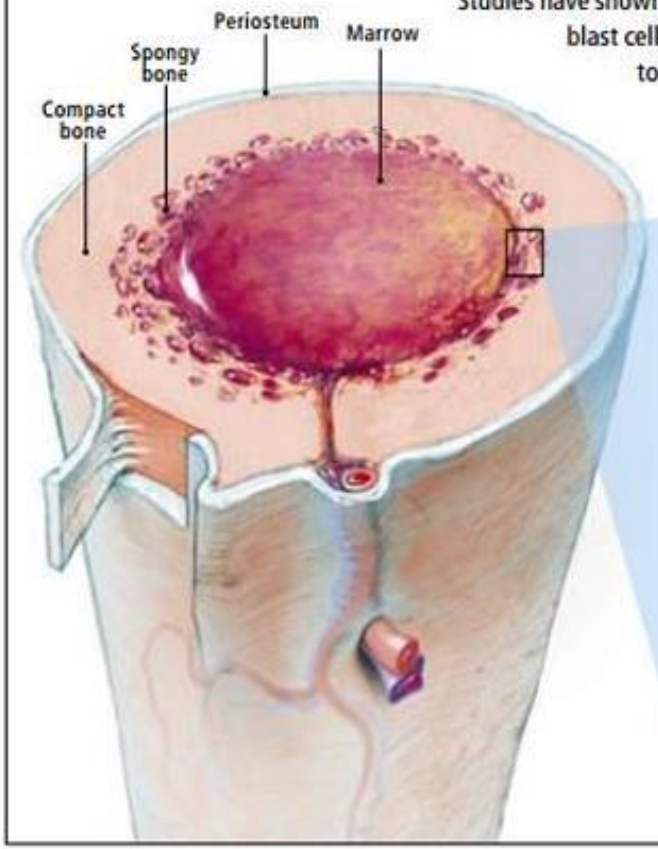
Severe

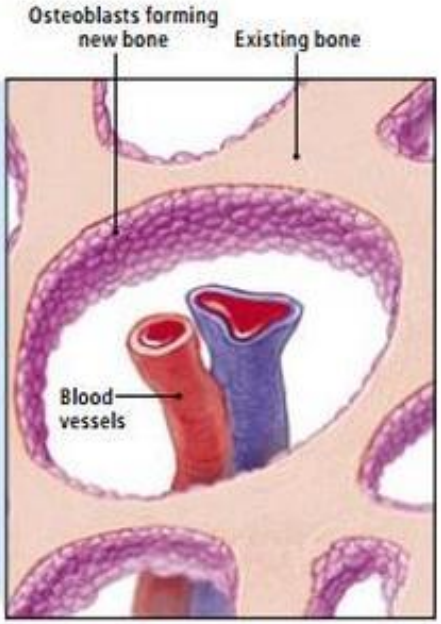
Source: Fluoridation Forum Report 2002 (Page 126)

[AREA OF CONCERN]

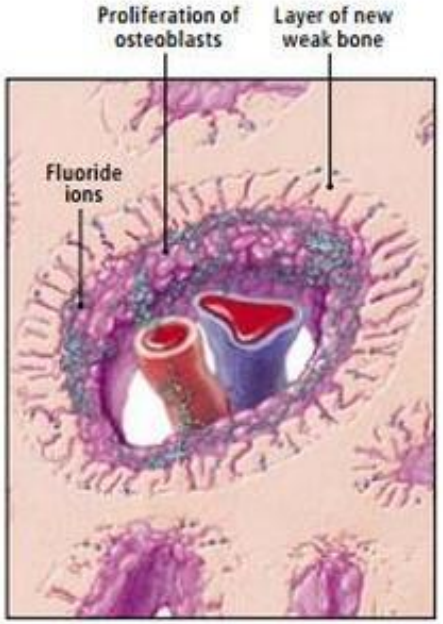
IS FLUORIDE WEAKENING BONE?

Scientists have focused on fluoride's effects on bone because so much of the chemical is stored there. Studies have shown that high doses of fluoride can stimulate the proliferation of bone-building osteoblast cells, raising fears that the chemical may induce malignant tumors. Fluoride also appears to alter the crystalline structure of bone, possibly increasing the risk of fractures.

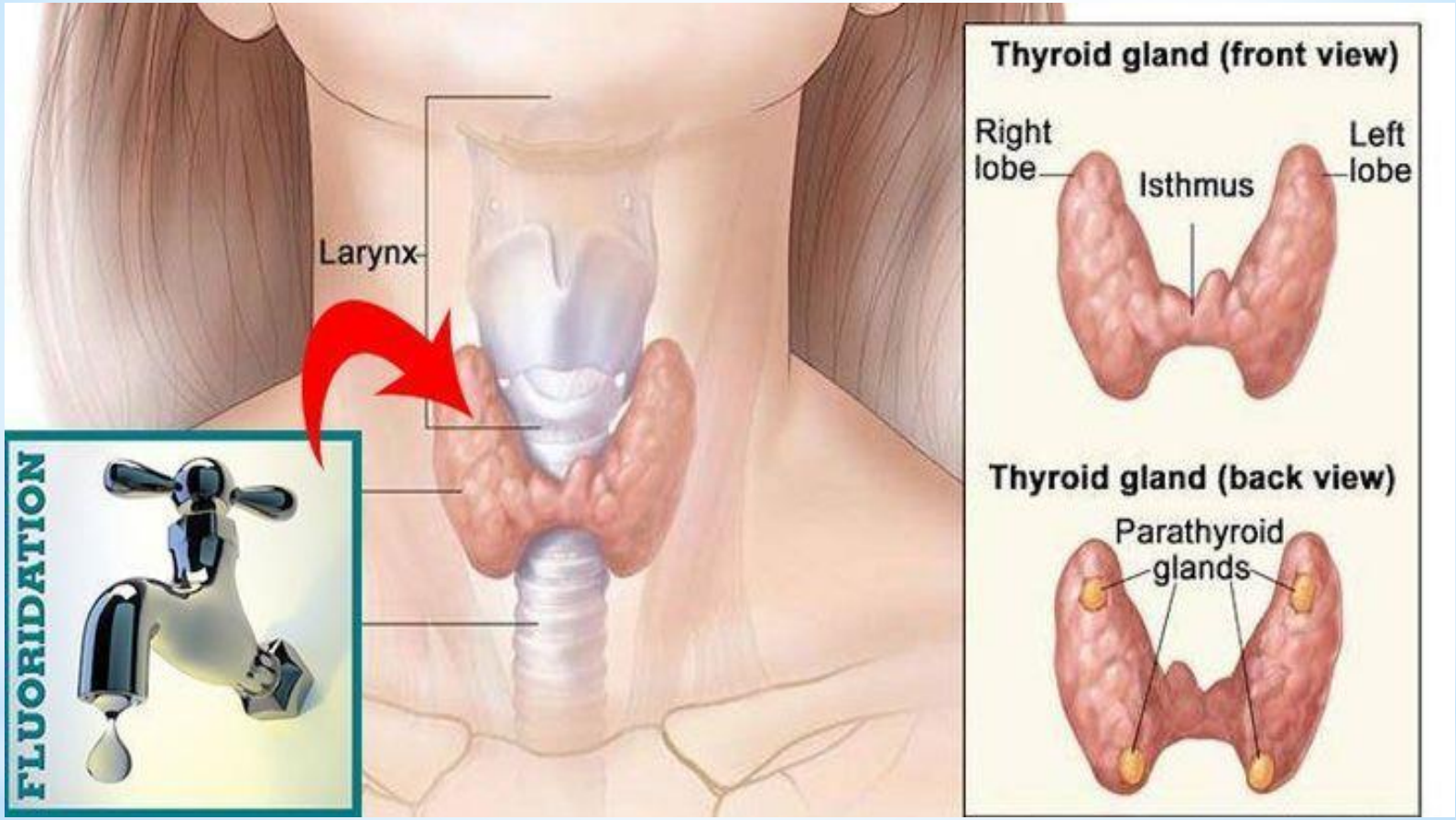




▲ Normal Bone Formation



▲ Effects of Excessive Fluoride


Larynx
FLUORIDATION
Thyroid gland (front view)
Right lobe
Isthmus
Left lobe
Thyroid gland (back view)
Parathyroid glands

Introduction:

- A highly reactive gas seldom occurs in nature in elemental form. It has very high affinity to combine with other elements or molecules to form fluorides.
- The natural environment of the earth has a favourable mechanism to immobilize toxic fluorides for the safe existence of life.

Basics:

Fluoride at =1.5mg/L in drinking water.

Damage the immune system by inhibiting the migration rate of WBC to infected area.

India

Rajasthan 47.5mg/Lt
Tamilnadu 7 mg/Lt
Dindigul 2.6 mg/Lt
Cumbum 2.6 mg/Lt

Objective:

- collect the water sample in your various parts of your locality.
- Do the water parameter test in your TWAD board.
- Such as F^-, TDS, PH, TA, TH, Cl^- and SO_4^{2-}
- If you identify the fluoride level is higher, do the defluorination process such as precipitation technique, absorbent method.

PROJECT-3

A comparative study on energy used for home appliances and cooking in nuclear family And joint family.


Family system
VS


ஒரே குடும்பத்தில் 40 பேர்!
அசத்தும் கூட்டுக் குடும்ப வாழ்க்


NUCLEAR
FAMILY
VS.
JOINT
FAMILY

Introduction

Due to the change of family system from joint family system in the past to nuclear Family of present, one of the major impacts could be an increase in the per capita energy consumption in a joint family being lower than that of a nuclear family.

Objective:

- To review and estimate the fuel use for cooking and electricity used for other purposes.
- To identify and analyze the scope for energy saving.
- To assess the contribution of social and cultural practice related to energy use and conservation.

Methodology:

- Selection of joint families and nuclear families for the experiment and divide them into two expt. Groups with adequate number of samples. From both the groups for experimentation and observation.
- To record their energy consumption per day different seasons with adequate number of repetition observation.
- To calculate and derive per capita energy consumption in both types of households and gas. If there is any significant difference in the energy consumption.
- Identify and document the social and cultural practice which contribute towards energy savings.
- Analyze and compare based on your collected data and draw conclusion and interpretation.

PROJECT-4

Effect on nano particle in soil nutrients-scientific approach

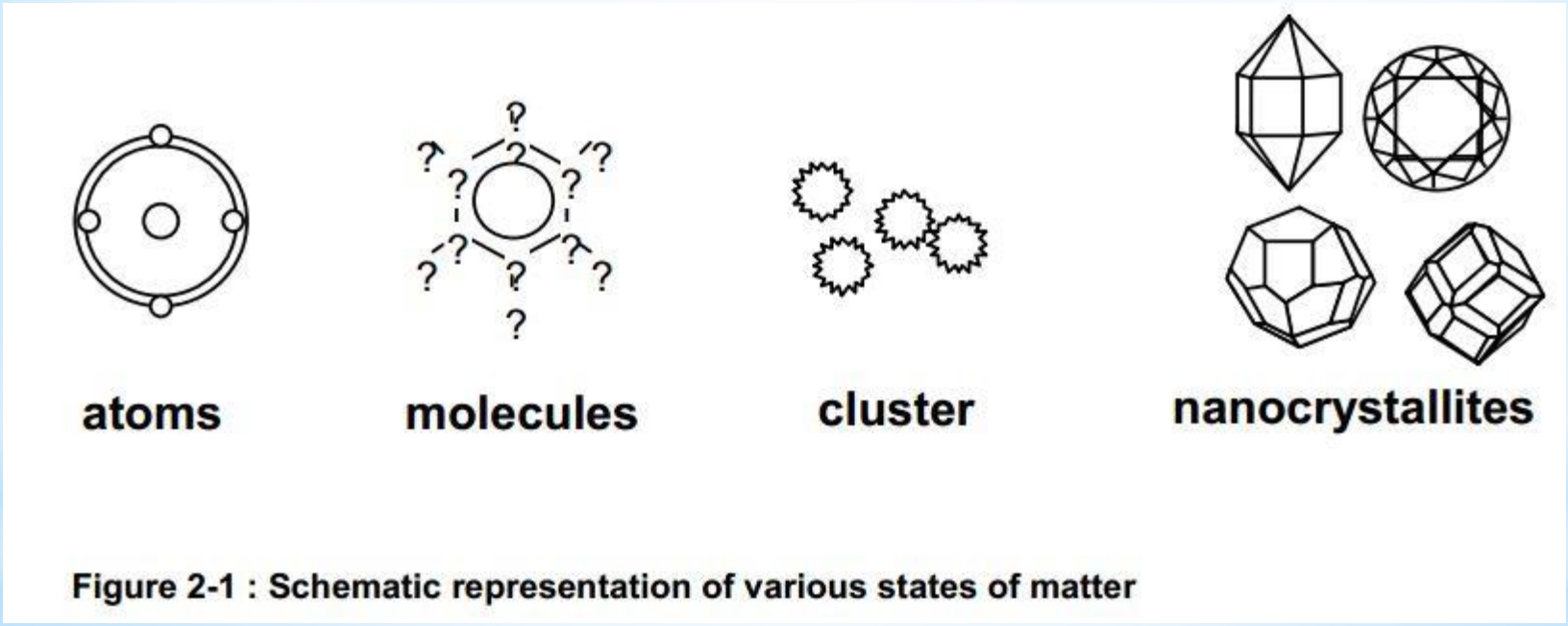


Figure 2-1 : Schematic representation of various states of matter

Soil test may refer to one or more of a wide variety of soil analyses conducted for one of several possible reasons. Possibly the most widely conducted soil tests are those done to estimate the plant-available concentrations of plant nutrients, in order to determine fertilizer recommendations in agriculture. Other soil tests may be done for engineering (geotechnical), geochemical or ecological investigations.

Objective

- ❖ Identify the alternate fertilizer with harmless to soil using nano technology.
- ❖ Optimized the availability of the nano particles –Experiment.

Methodology:

- ❖ **Collect the deficit nutrients of the soil for various samples.**
- ❖ **According to the deficit, the nano particles were purchased/ synthesized using simple techniques.**
- ❖ **Optimize the nano particles –expt.**

For e.g.,

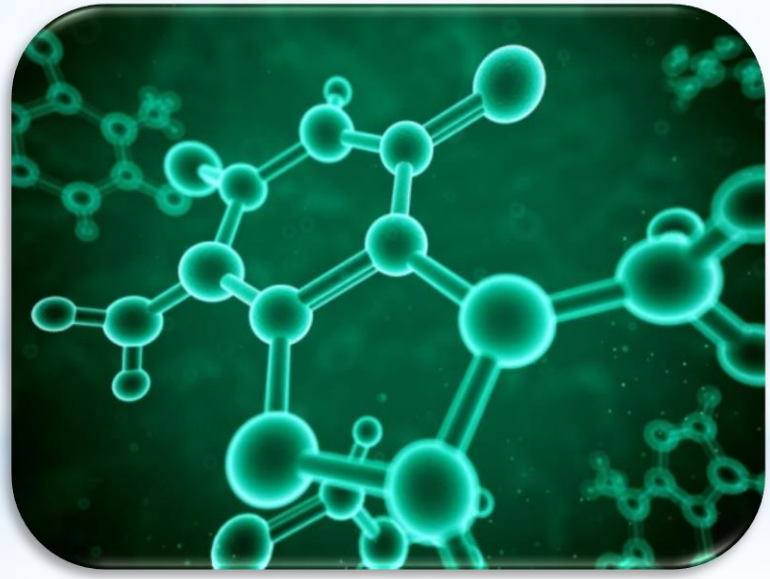
- ✓ Take any seed –e.g Green pea
- ✓ **MgO (bare,3,6,9,12) wt% added to the water and feed.**
- ✓ **After Four weeks, You visualize the growth of the plant.**

Additional project ideas:

- Ag nano particle synthesis – stabilized weed extract.
- Amino acids - Avaram flower extract.

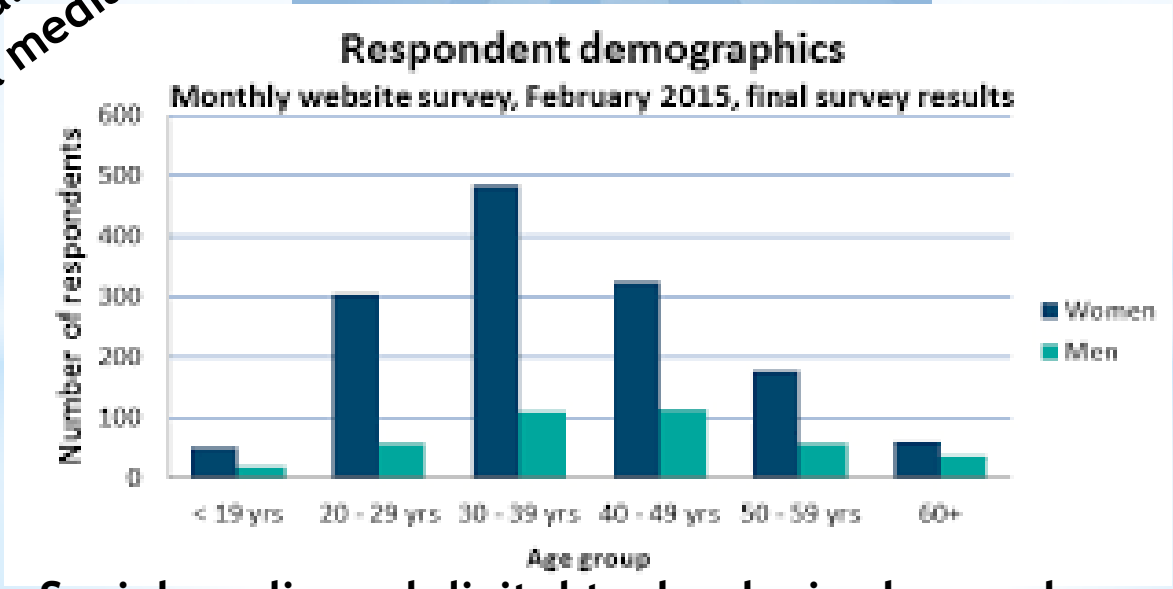
PROJECT-5

Analytical study on the positive and negative effect of communication technologies and social media on community and culture



Numerous causal relationship formed through social media

Fastest communication available to ma



Social media and digital technologies have a huge influences on a student's education

First US smallpox drug to defend agains

MICROSCOPIC KILLER

WASHINGTON: The US Food and Drug Administration has approved the first treatment for smallpox 'a deadly disease that was wiped out four decades ago' in case the virus is used in a terror attack.

Smallpox was eradicated worldwide by 1980 after a huge vaccination campaign. But people born since then haven't been vaccinated and small samples of the smallpox virus were saved for research purposes, leaving the possibility it could be used as a biological weapon.

The maker, SIGA Technologies, has already delivered two million treatments that will be stockpiled by the government, which partially paid for the development of the drug, called TPOXX. The drug is a capsule, taken twice daily for 14 days.

To test the drug's effectiveness, monkeys and rabbits were infected with a similar virus and then given the drug. More than 90 per cent survived, the company said.

Its safety was tested in several

Secret behind fake news

Algorithms are invisible but essential formulae that run modern life

PARIS: At the heart of the spread of fake news are the algorithms used by search engines, websites and social media which are often accused of pushing false or manipulated information regardless of the consequences.

What are algorithms

They are the invisible, but essential computer programmes and formulas that increasingly run modern life, designed to repeatedly solve recurrent problems or to make decisions on their own.

Their ability to filter and seek out links in gigantic databases means it would be impossible to run global markets without them, but they can also be refined down to produce personalised quotes on everything from mortgages to plane tickets.

They also run our Google searches, FB newsfeed, recommend articles, videos and may censor questionable content because it may contain violence, pornography or racist language.

Other algorithms charged with the most complex and sensitive tasks can be opaque "black boxes" which develop their own AI based on our data.

Skewed view of the world

Algorithms may help us find our way through the huge amount of information. In organising our online content, algorithms also tend to create 'filter bubbles', insulating us from opposing points of view.

During the US presidential election in 2016, Facebook was accused of helping Donald Trump by allowing often false information about his rival Hillary Clinton to circulate online, closing people into a news bubble.

Theory of conspiracy

Social media algorithms tend to push the most viewed content without checking if it is true or not, which is why they magnify the impact of fake news.

On YouTube in particular, conspiracy theory videos get a great deal more traffic than accurate and properly sourced ones, said Guillaume Chaslot, one of the Google-owned platform's former engineers. These videos, which may claim that the moon landings or climate change are lies, get far more views and comments, keeping users on the platform longer and undermining credible, traditional media, Chaslot insisted.

Business principle

Former Silicon Valley insiders who make up the Center for Humane Technology, have warned that "we can't expect YouTube, Facebook, Snapchat or Twitter to change, because it's against their business model."

The French privacy protection body, the CNIL, last year recommended state oversight of algorithms and that there should be a real push to educate people "so they understand the cogs of the (information technology) machine".

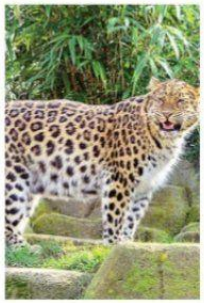
Self-censorship

Some internet giants such as Facebook and Youtube have themselves begun to act to some degree. FB has started an effort to automatically label suspicious posts, while YouTube is reinforcing its "human controls" on videos aimed at children.

FACT OF THE MATTER

84 Amur leopards in the wild

ENDANGERED



Scientists estimate that only 84 Amur leopards, a highly endangered species, are left in the wild across its current range in Russia and China. This new estimate of the Amur leopard population was reported in the latest issue of journal *Conservation Letters* by scientists from China, Russia, and the US, *Xinhua* reported. Leopards are currently recolonising habitat in China by dispersing from the Russian side, where leopard numbers appear to be close to the maximum that can be supported.

FB to demote fake news

NO PURGE

Facebook has said that it will not remove fake news from its platform because it does not violate its community standards. Instead, it says posts that it deems to be fake news will be "demoted" in the news feed. The social network is currently running an advertising campaign in Britain that declares "fake news is not our friend". But it said publishers often had "very different points of view" and removing fabricated posts would be "contrary to the basic principles of free speech", the *BBC* reported on Friday. Facebook has been scrutinized for its role in spreading fake news after evidence emerged that Russia tried to influence US voters using the social network.

Testosterone therapy to prevent weight loss

CANCER TREATMENT

WASHINGTON: A testosterone therapy can help prevent loss of body mass in cancer patients undergoing chemotherapy and help improve their quality of life.

Many cancer patients suffer from a loss of body mass known as cachexia. Approximately 20 per cent of cancer related deaths are attributed to the syndrome of cachexia, which in cancer patients is often characterised by a rapid or severe loss of fat and skeletal muscle.

Melinda Sheffield-Moore, a professor at University of Texas in the US showed that the hormone testosterone is effective at combatting cachexia in cancer patients. There are currently no established therapies targeting this loss of skeletal muscle, and without an intervention, patients lose muscle function and become fatigued and weakened.

The research, published in the *Journal of Cachexia, Sarcopenia and Muscle*, may help cancer patients increase quality of life and maintain eligibility to receive standard of care therapy if cachexia ensues.

Patients in this study receiving testosterone maintained total body mass and increased lean body mass by 3.2 per cent.

SEA OF PEOPLE

Revellers raise red scarves and candles marking the end of the San Fermin festival

எல்லைமீறினால் மூளைக்கு உலை!

ஸ்மார்ட்போனால் 'கேன்சர்' அபாயம்

புதுடில்லி, ஜூலை 22-

ஸ்மார்ட்போனை நீண்ட நேரம் பயன்படுத்துபவர்களுக்கு, மூளை கேன்சர் ஏற்படும் வாய்ப்பு 400 சதவீதம் அதிகமாக உள்ளது என மும்பை ஐ.ஐ.டி., பேராசிரியர் கிரிஷ் குமார் தெரிவித்துள்ளார்.

இன்றைய இளைஞர்களிடம் ஸ்மார்ட் போன் பயன்பாடு அதிகரித்துள்ளது. இதனால் ஆபத்துகளும் அதிகரித்துள்ளன. இதுகுறித்து மும்பை ஐ.ஐ.டி., பேராசிரியர் கிரிஷ் குமார் கூறியதாவது:

ஸ்மார்ட்போனை அதிகநேரம் பயன்படுத்துவதால், கதிர் வீச்சு பாதிப்புக்கு உள்ளாக நேரிடும். ஒரு நாளைக்கு அரை மணி நேரத்துக்கும் மேல் ஸ்மார்ட்போன் பயன்படுத்துவதே அதிகம் தான். அலைபேசியில் இருந்து வெளியாகும் கதிர்வீச்சால், ஆண்களுக்கு விந்தணு குறைபாடு ஏற்படுகிறது.

குழந்தைகள் அலைபேசியை பயன்படுத்துவதால், அவர்களின் மெல்லிய மண்டை ஓட்டுக்குள், கதிர் வீச்சு ஆழமாக ஊடுருவுகிறது.

இதனால் குழந்தைகளின் மூளை வளர்ச்சி பாதிக்கிறது. மேலும் அலைபேசி கதிர் வீச்சால் தாவரங்கள் மற்றும் விலங்குகளும் பாதிப்புக்கு உள்ளாகின்றன.

இன்றைய இளைஞர்கள் அதிகளவில் ஸ்மார்ட்போன் பயன்படுத்துகின்றனர்.

இதனால் 'மூளை கேன்சர்' ஏற்படும் அபாயம் 400 சதவீதம் அதிகமாக உள்ளது.

இந்த கதிர்வீச்சு மனிதனின் மரபணுவில் மாற்றமுடியாத பாதிப்பை ஏற்படுத்துகிறது.

அலைபேசியை தலையின் அருகில் வைத்து அதிகநேரம் பயன்படுத்துவதால், தூக்கமின்மை, நரம்பு கோளாறு, ஞாபக மறதி, நடுக்குவாதம் (பார்கின்சன்) போன்ற நோய்களுக்கு உள்ளாக்கப்படுகின்றனர்.

நவீன தொழில்நுட்பங்கள், மக்களுக்கு பல வழிகளிலும் நன்மை அளிக்கிறது. இருப்பினும் அதனால் ஏற்படும் பாதிப்பைகளை உணர்ந்து கொண்டு அதற்கு ஏற்ற வாறு பயன்படுத்த வேண்டும், என்றார்.

குழந்தைகளின் வளர்ச்சியை பாதிக்கும் சமூக வலைதளம்

குழந்தைகளின் நடத்தை மற்றும் ஒழுக்கம் ஆகியவற்றில், சமூக வலைதளம் மிகப்பெரிய பாதிப்பை ஏற்படுத்துகிறது என பிரிட்டனில் நடத்தப்பட்ட ஆய்வு தெரிவிக்கிறது.

இன்றைய நவீன தொழில்நுட்ப உலகில் இணையதள பயன்பாடு என்பது நகரங்களில் இருந்து குக்கிராமங்கள் வரை பரவியுள்ளது. இதிலும் பேஸ்புக் போன்ற சமூக வலைதளங்களை பயன்படுத்துவோரின் எண்ணிக்கையும் நாள்தோறும் அதிகரிக்கிறது. பேஸ்புக்'கில் அக்கவுன்ட் இல்லையெனில் அவர்களை ஏளனமாக பார்க்கும் நிலை கூட இருக்கிறது.

எதிர்ப்பு

பிரிட்டனில் எட்பாஸ்டன் நகரில் உள்ள பிர்மிங்ஹாம் பல்கலைக்கழகம், பெற்றோர்களிடம் நடத்திய ஆய்வில் 15 சதவீத பெற்றோர்கள் மட்டுமே, சமூக வலைதளங்கள் குழந்தைகளின் சிந்தனை மற்றும் வளர்ச்சிக்கு உதவியாக உள்ளது என தெரிவித்தனர்.

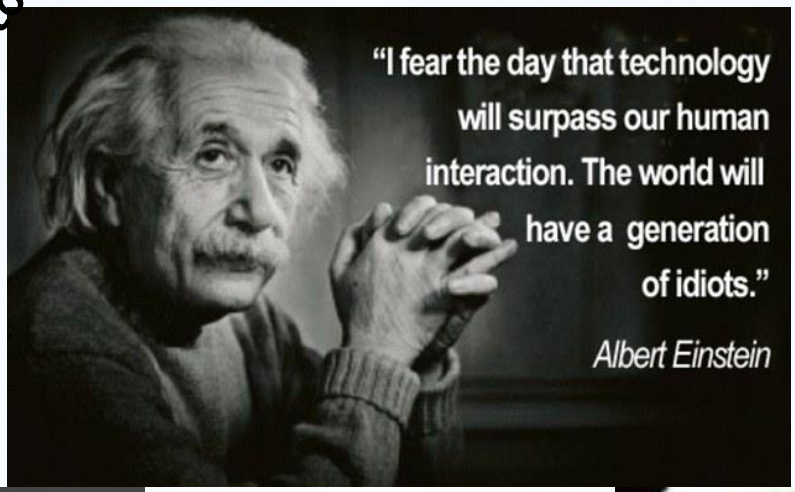
40 சதவீத பெற்றோர்கள் இது மூக்கியமான பிரச்னை, சமூக வலைதளங்களால் குழந்தைகளின் வளர்ச்சி பாதிக்கப்படுகிறது என தெரிவித்தனர். 24 சதவீத பெற்றோர்கள், குழந்தைகளிடம் நாம் தான் அதை எவ்வாறு பயனுள்ள வகையில் பயன்படுத்த வேண்டும் என புரிய வைக்க வேண்டும் என கருத்து தெரிவித்தனர்.

93 சதவீதம்

மேலும் 11 முதல் 17 வயது குழந்தைகள் சமூக வலைதளங்கள் பயன்படுத்துகின்றனரா என 1,700 பெற்றோர்களிடம் கேள்வி கேட்கப்பட்டது. அதற்கு 93 சதவீத பெற்றோர்கள் தங்களது குழந்தைகள் தினமும் சமூக வலைதளங்களை பயன்படுத்துகின்றனர் என பதிலளித்தனர்.

Adults, kids are more vulnerable to cyber bullying.

Victims have been drive to suicide

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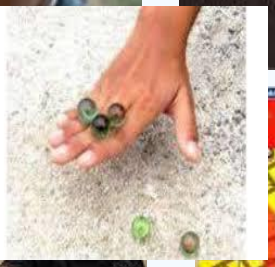
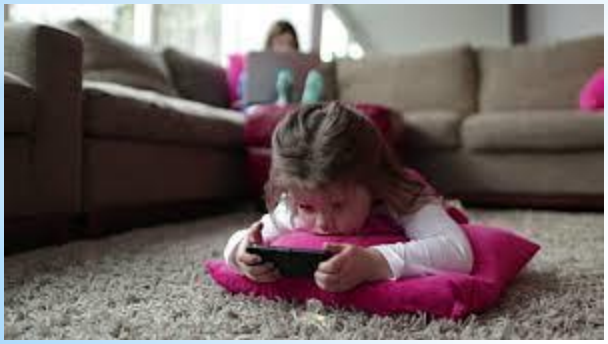
TRADITIONAL
GAMES


Traditional Games




Snakes & Ladders

RUN CELLPHONE GAMES TO YOUR PC



Objective:

- **Analyze the smart phone users and their attitudes.**
- **Survey the traditional playing ~~Vs~~. cell phone game playing.**
- **Psychological survey of the above topic.**

Methodology:

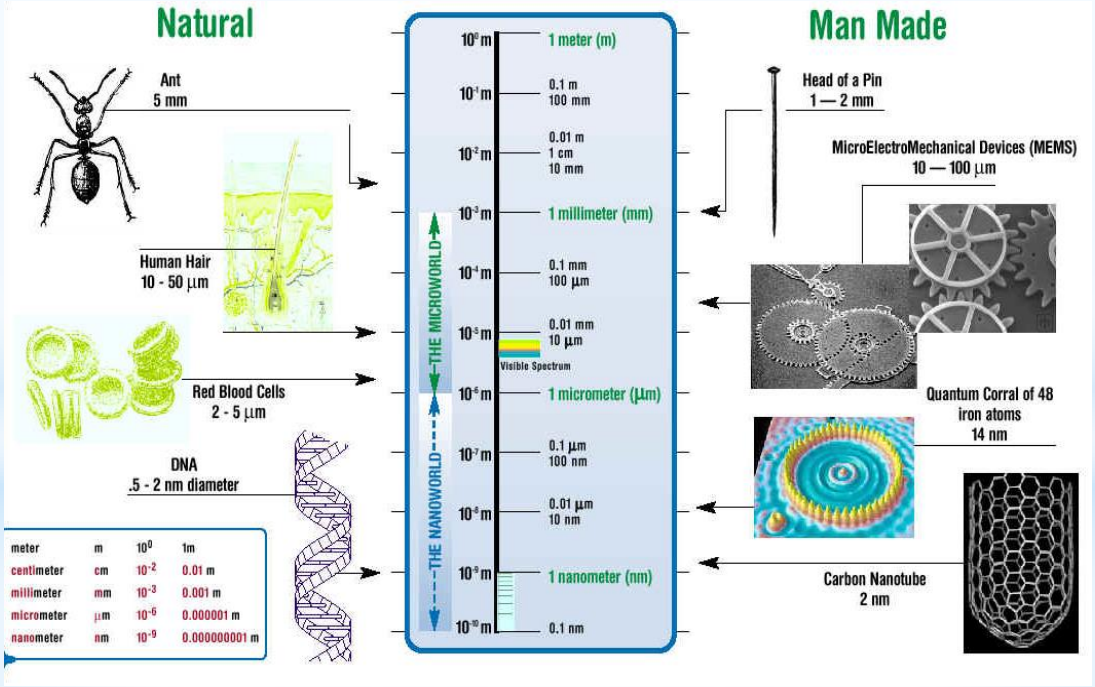
- **Data collected with cell phone users Sheet contains Name, age, how many hours/per day, whether they use internet, which topic they browse.**
- **Analyze the data in the point of studies (children), emotional aspects,**
- **Energy gained basis.**
- **Draw the draft of the conclusion.**

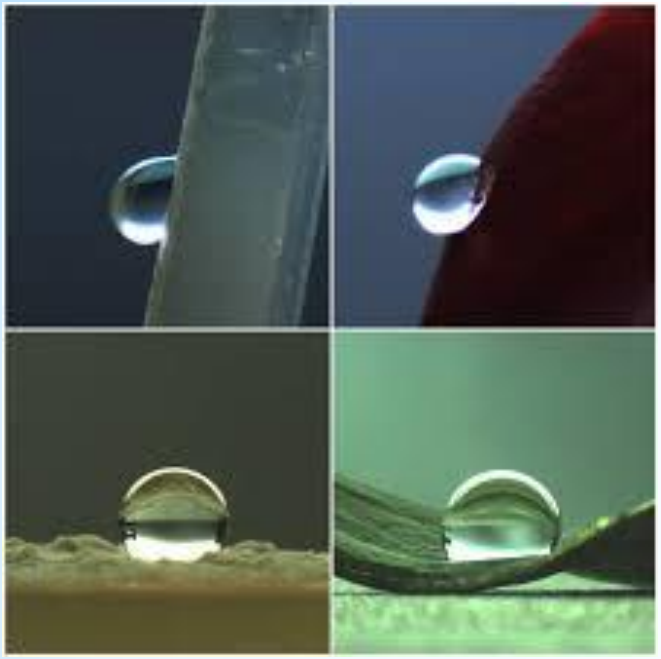
Outcome:

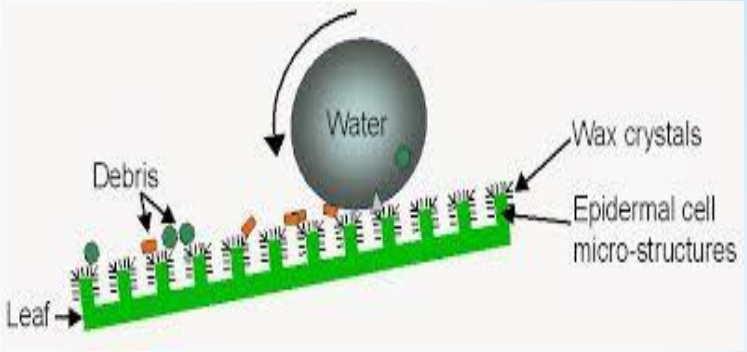
- **How to approach the technology and device.**
- **Aware the radiation problem.**
- **The project will help us to live the healthy life.**

PROJECT-6

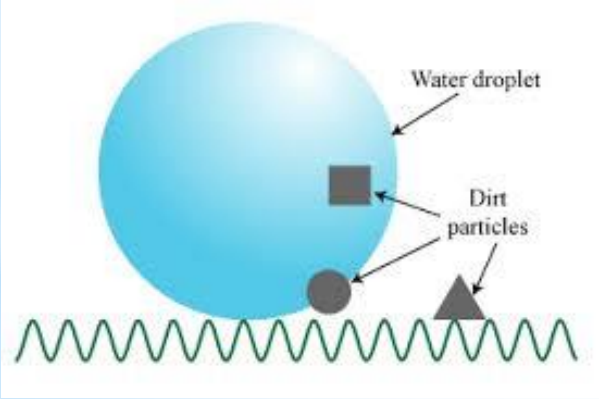
Identify the innovative science principle and employing into applications.







Polymer materials like lotus leaves enable self cleaning automobile

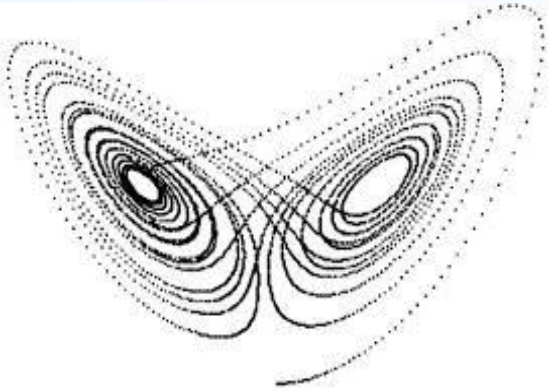


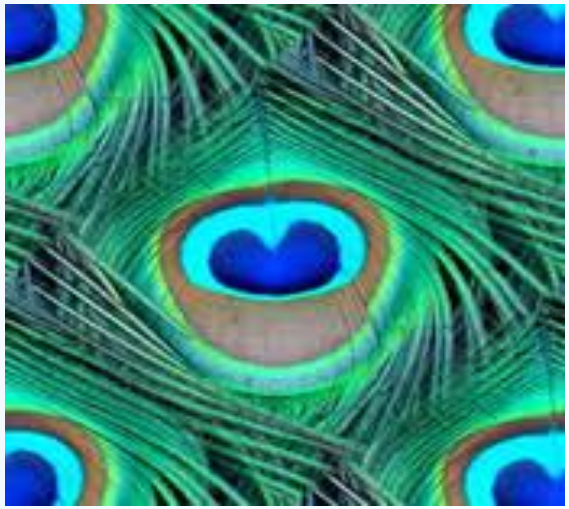
$\theta < 90°$ Hydrophilic

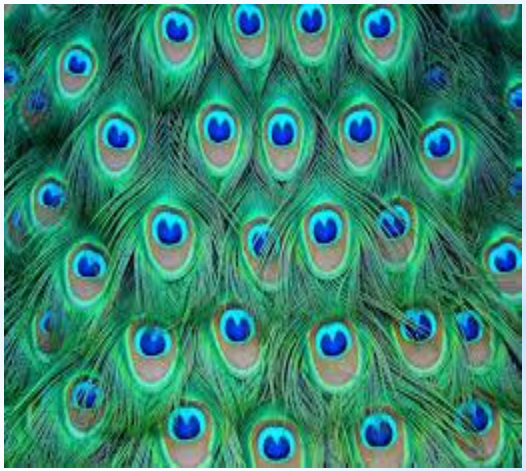
$\theta - 90 - 150°$ Hydrophobic

$\theta > 150°$ Super Hydrophobic

When any damage is caused to livings it cures itself. Nature uses abundantly Nanomaterials, repairing itself smartly







Peacock colors, mimicking the vibrant colors of a Peacock feather, are a great theme for any celebration. They include the colors turquoise, green, purple, and a deep royal blue.

Objective:

- To identify the innovative idea around your locality.
- Especially nano principles.
- Document this idea and possible applications.

Methodology:

- Try to understand the lotus effect, butterfly effect and luminescence insects etc.,
- What are the simple principles behind them?
- How to apply these principles into product?

Outcome:

- Large building, big vehicle are painted using super hydrophobic principle (self cleaning process)
- Nano crystals (biotonic) are used as environment pollution reducer.
- Butterfly feathers are used to generate non-linear effect in science.


Thanks for your kind Attention