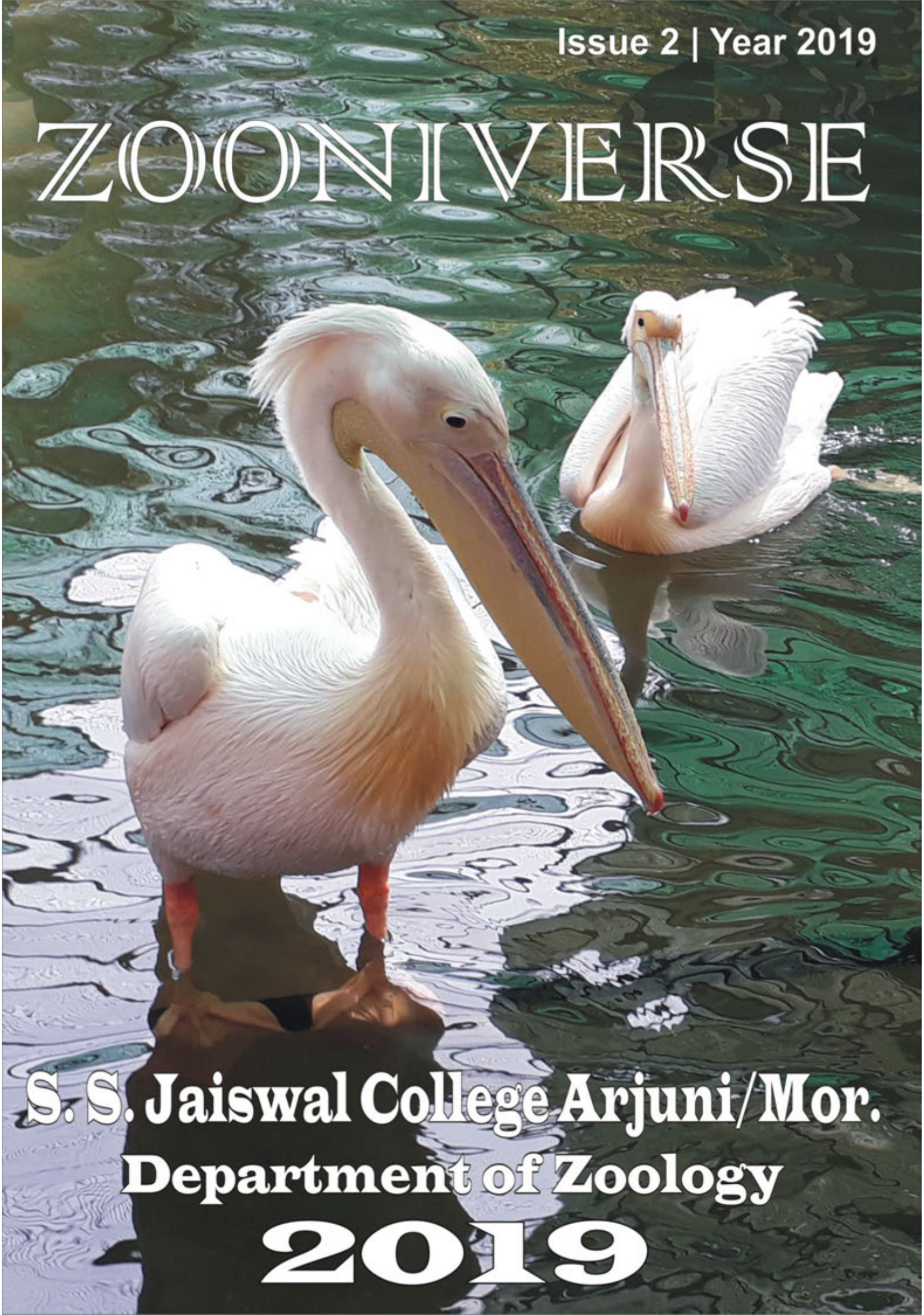
Issue 2 | Year 2019

ZOONIVERSE



S. S. Jaiswal College Arjuni/Mor.

Department of Zoology

2019


कृषि विज्ञान केंद्र
कृषि विज्ञान केंद्र, अंडला (नाकोणी)
FARM SCIENCE CENTRE

ZOONIVERSE

2019

Compiled and Edited by

Vrushabh H. Borkar

Index

Principal's Desk

Zooniverse is a good attempt to provide a platform for expressing the news and experiences about the subject and related activities. Such documents become lifelong memories about institution and subject and maintain an emotional and intellectual bond with Teachers and Staff for throughout the life. It become inspiration and view to implement good practices in future which were adapted in student's life. I congratulate the convenor and staff behind this idea to start such activity and I wish that it will continue with further innovations. I also wish Best Luck for the student of final year for their future and progress in the subject.

Dr. S. D. Patankar

Principal

Message

Dr. G. T. Paliwal
Head Department of Zoology
S.S.J. College, Arjuni/Morgaon

Thank you all for being my lovely students. It was really great teaching you, and great being your teacher. I had a wonderful time with you all. Thank you for making your presence so entertaining. You all were so disciplined that there was even not a fraction of a complaint.

I think S.S.J. has given you all the values. I know and confident that you are going to settle in a new environment with your new set of friends.

But you know what you may find that your life is all set and suddenly you will find that the life throwing bouncers at you and it will hit you hard and that is the time you are going to remember my words **get up, show up and never give up**.

You are not going to question life why me, you should tell life try me.

This is not the end of your life; it's just a new beginning….

Bless you all…….. Thank you….

Departmental Report 2018-19

The academic session of 2018-19 started on 16th June 2018. Regular teaching started from 1st July 2018. From 5 July 2018 to 12th July 2018 **Bridge course** was organized for SEM- I students.

B.Sc. SEM-V students along with Dr. G.T. Paliwal, teacher in charge visited to Shivnibandh Govt Fish Farm, Dist. Bhandara as a part of their educational tour on 6th August 2018. Students observed fish breeding operations of IMCs. They studied breeding ponds, breeding hapas, and Chinese circular hatchery system. Shri Patil, Fisheries officer guided the students. They collected some material from the farm for the laboratory.

On the same day students also visited P.D. K.V. Akola based Agro-Research Centre, Sakoli. Dr. Usha Dongarwar, Programe Co-ordinator of the centre guided the students on various research activities carried out at the centre and also gives information on modern technologies used in the agricultural field.

A Life Science Association was inaugurated on 18th August; during this a Workshop on **Bio fertilizers** was also organized. Dr. Arati Shanware & Dr. Pravin Kirari were the guest speakers.

An **International Vulture Day** was celebrated on 4th September 2018, during this occasion Dr. G.T. Paliwal guided the students by a lecture titled **"Vultures Decline: A shame on Humanity"** was organized.

A lecture was delivered by Dr. S.D. Patankar, Principal of our college on the topic **Careers in Life Sciences** for the students of Sem-IV & V. On 21st September 2018.

Educational Tour was organized on 24th September 2018, during this we visted Govt. Sericulture farm, Arjumi/Morgaon & study the various activities related to Tasar Sericulture.

Wildlife Week was celebrated during 1-7th October. Prof. Ajay Raut delivered a lecture.

Study tour to Navegaon National Park was organized for SEM-I students to study various ecosystems functioning & biodiversity there in.

A guest lecture on **Integrated Pest Management** by Miss Jyoti Singh was organized on 24th January 2019.

Prof. Ajay Raut delivered power point presentation lecture to SEM-IV students on **Local Birds** on 5th February 2019.

On the occasion of **WORLD WETLAND DAY** a study tour was organized for SEM-IV students to study & observe wetland biodiversity especially avian fauna. During this 25 different bird species were reported.

A PowerPoint competition for students was organized on 12t & 13t February 2019.

On 28th February 2019 **NATIONAL SCIENCE DAY** was celebrated to commemorate our great Physicist Sir C.V. Raman.

About the Department:

The Science Faculty (UG level) was introduced in the college in 2008-20009 with the subjects Chemistry, Physics, Mathematics, Botany, Zoology & Microbiology. During academic session 2008-2009, 18 students were admitted with only two faculty teachers. Semester system was introduced by our university from the academic session 2012-13.At present we have more than 350 students in the science faculty with 11 faculty teachers. We have 189 students opted zoology as a subject. We have well equipped laboratory.

Faculty members & Non-teaching staff:

Dr. G.T. Paliwal,
Head & Assistant Professor
M.Sc., PhD

Miss Seema Kusram
(CHB Teacher)
M.Sc. B.Ed

Miss Rupali Selokar
(CHB Teacher)
M.Sc. D.Ed

Mr. R.Y. Dongarwar
(CHB Teacher)
M.Sc. D.Ed

Mrs Sunita M. Tawale
(Lab Attendent)

Farewell

"Every ending has a new beginning"

The College Administration and the faculties of Department of Arts, Commerce & Science organized a farewell function for the outgoing students of final year on 7th March 2019, on the birth anniversary of our inspiration Late Shri Shivprasadji Jaiswal in the College Auditorium. Dr. S.D. Patankar, Principal presided over the function. Dr. Kakade, Head Faculty of Arts, Dr. P.S. Dange, Head Faculty of Commerce, Dr.G.T. Paliwal Head Faculty of Science, Shri Mukesh ji Jaiswal, Secretary of Shri Durga Shikshan Sanstha & Dr. K.J. Seebee were the dignitaries present on the dais. The Principal of the college gave an enlightening speech, guiding students to face the challenges awaiting them. A few students shared their experiences they had in college, thanking one another, the management and faculty of the college for all the support, motivation and some regretful memories of the final year students of their journey in S.S. Jaiswal College. This function was concluded with a group snap and a word of appreciation. Refreshment was arranged after the program.

Meritorious Students

Congratulations for securing more than 75% marks in R.T.M. Nagpur University Examination.

Ku. Pallavi Deshmukh

80.66 % Marks

Ku. Afrin Pathan

77.33 % Marks

Ku. Dayananda Walthare

78.66 % Marks

Ku. Pallavi Fulzele

78.00 % Marks

Excellence in Sports

Prashant Lendhe B.Sc. Sem-VI receiving First Prize in Long Jump

- Winner of State 2nd award in 400 x100 Meters Relay in 2016
- Winner of State (Pune) 2nd award in 2017 in the event Long Jump
- Winner of State 2nd award in Long Jump at Nagpur
- Silver medallist in 100 meters organized by R.T.M. Nagpur University in 2018
- Gold medallist in Long Jump organized by R.T.M. Nagpur University in 2018

DEPARTMENTAL ACTIVITIES

1. Amazing Facts

Ku. Pallavi Deshmukh
B.Sc. Sem-VI

Animal behaviourists have concluded that cats don't meow as a way to communicate with each other. It's a method they use for getting attention from humans.

Ants represent 25% or more of the insect biomass on the planet. Ants are the longest living of all the insects, living for upto 30 years.

A Dragonfly has a lifespan of 24 hours. Dragonflies and damselflies form a heart with their tails when they mate.

The longest recorded flight of a chicken is 13 seconds.

Duck's feathers have evolved to be highly waterproof.

Male platypus have venomous spurs.

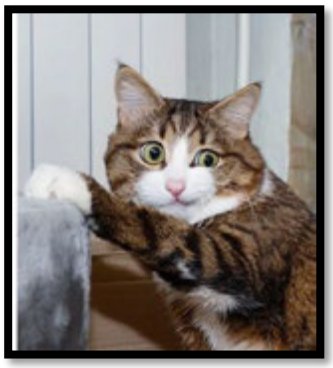
Female bats give birth while hanging upside down, catching the baby in their wings as it drops.

Honeybees can get sexually transmitted diseases.

Birds are immune to the heat of chili papers.

Anteaters don't have teeth.

Fruit bats don't use echolocation-They have excellent senses of sight and smell.



Cats can't taste sugar. They don't have sweet taste buds.

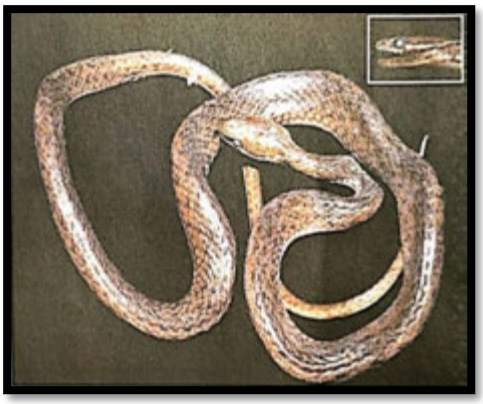
Red-eyed tree frog eggs can hatch early if they sense danger.

The axolotl can regenerate its limbs.

Flamingos are naturally white-Their diet of brine shrimp and algae turns them pink.

2. Zoologists discovers crying snake in Arunachal Pradesh

Ku. Pratiksha Nakade
B.Sc. Sem-VI



A new species of crying snake has been discovered in Lepa-Rada district of Arunachal Pradesh. The discovery of non venomous crying keel back who is zoological name is ***Hebius lacrima*** has been published in Zootaxa. The name for this keelback was suggested because of a dark spot under its eyes looking like black tear that interrupts white strips running along the upper jaw to the back of its head and beyond,Jayaditya Purkyastha a zoologist who located in the new keelback in the Basar of Arunachal Pradesh,told the Hindu.Lacrima means tears in latin.

According to the paper by Mr.Purkyashta and Mr.David, crying keelback can be differentiated from all other species of the genus Hebius by the combination of distinctive broad, white, interrupted strip along its body, three rows of irregular dark blotches on each side, six creams elongated spot on its anterior part and a smooth dorsal scales row. The snake lives near streams along paddy fields.

3. Interesting facts about vultures

Ku. Dayananda Walthare
B.Sc. Sem-VI

The **vulture** is a large, carnivorous bird that is most well known for its scavenging nature. Vultures are pretty flexible when it comes to their **habitat**, as long as there is food, although you won't find them in Australia, Polar Regions, or most small islands. These unusual birds are **divided into two groups**: **New World vultures**, which are from North, Central, and South America; and **Old World vultures**, which live in Africa, Asia, and Europe.

There are **7 species of New World** vultures include Andean condors, California condors, and the **16 Old**

World species include the lammergeyer and griffons.

New World vultures and Old World vultures aren't actually closely related. They're similar because of what's called **convergent evolution**: They have developed similar bodies and behaviors because they occupy the same ecological niche. **Life span** is from **10** to **50 years**, depending on species.

The **largest** is **Himalayan griffon** (*Gyps himalayensis*), up to **1.5 meters** (4.9 feet) tall with a wingspan up to **3.1 meters** (10.2 feet). he **smallest** and **lightest** is **palm-nut vulture** (*Gypohierax angolensis*), **60 centimeters** (2 feet) tall and weight up to **1.7 kilograms** (3.7 pounds). Most vultures have a **large pouch in the throat** (crop) and **can go for long periods without food** — adaptations to a feast-or-famine scavenging lifestyle. Vultures have **strong** and **curved beaks** for ripping apart meat. A **strong immune system** allows vultures to eat rotting and possibly infected meat without getting sick. **These birds play an important role in nature by cleaning disease out of the environment**. This helps protect other animals and people from getting sick. **Vultures have keen eyesight**. It is believed they are able to spot a one-meter (3 foot) carcass from four miles away on the open plains. In some species, when an individual sees a carcass it begins to circle above it. This draws the attention of other vultures that then join in. While **New World vultures often have very keen senses of smell**, their Old World counterparts aren't as lucky. New World vultures are frequently attracted to mercaptan, a gas that rotting corpses release and that they find very appealing. Unlike many raptors, **vultures are relatively social and often feed, fly or roost in large flocks**. The mother vulture lays **1 egg**, typically, if she is one of the larger species, **2** or **3 eggs** if she is one of the smaller vulture species. The **parents take turns keeping the egg warm and feeding the chicks** when they hatch.

Aside from poisoning – both targeted and incidental – vultures are threatened by wind turbines, electricity pylons, habitat destruction, food loss and poaching." **Of the 23 vulture species of the world, 16 are considered near threatened, vulnerable to extinction, endangered or critically endangered.**

4. Molecular Taxonomy of the *Sympetrum vulgatum* (Odonata: Libellulidae)

Ku. Kanchan Borkar
B.Sc. Sem-VI

Molecular taxonomy is the classification of organisms on the basis of the distribution and composition of chemical substances in them. Until the introduction of molecular systematics the genus Sympetrum Newman 1833 included over 60 species divided into subgroups according to morphological criteria, especially the secondary genitalia of the male and female vulvar scale. These groups are now considered artificial due to a lack of synapomorphies and the long standing debate over which taxa should be included in the genus. Pilgrim and Von Dohlen (2012), combining molecular and morphological methods provided evidence for the monophyly of the genus in spite of the existence of some dubious taxa and proposed the use of Sympetrum sensu lato and sensu stricto they divided the genus into six species-groups but pointed out that the relationship between them were not satisfactorily settled. They conclude that the genus across about 50 mya and have played an important role in its biographical history their preliminary estimate provide a divergence time for the species groups of approximately 32-38 myr. Possibly influence by climate cooling and drying in the late Eocene and early Oligocene leading to fragmentation of population. One of these groups in the vulgatum group,which has a Hol-arctic distribution and is formed by S. vulgatum, S.meridional, S.sanguineum, S.striolatum, S.signiferum Cannings and Garrison 1991 and S.vicinum. The vulgatum group started diverging approximately 32 mya, whereas the species S. vulgatum differentiated about 14 mya in the Miocene.

In addition, there are several species of Sympetrum that only differ in colouration or body size, which is a reason for doubting their vallidity. Molecular study and other combining molecular and morphological analyses conclude that in most cases there is no reason to maintain the specific status of some of them. However, there are still some cases that need clarification, including the status of the S.vulgatum subspecific complex.

Sympetrum vulgatum has a wide distribution in Eurasia, from Western Europe to the Oriental part of Russia. It some times reaches as far as Britain in the West and Japan in the east.

5. Pied Kingfisher

Mr. Kamlesh Turhate
B.Sc. Sem-VI

The **pied kingfisher** (*Ceryle rudis*) is a species of water kingfisher found across Africa and Asia. They are usually found in pairs or small family parties. When perched, they often bob their head andflick up their tail. They mainly eat fish, but will take crustaceans and large aquatic insects*The pied kingfisher is estimated to be one of the three most numerous kingfishers in the world; the other two are the common kingfisher and collared kingfisher.* Given the collared has been broken up into six species this probably isn't accurate anymore.The pied kingfisher is the only member of the genus *Ceryle*. Molecular analysis shows it is an early offshoot of the lineage that gave rise to American kingfishers of the genus *Chloroceryle*.The pied kingfisher was initially believed to be descended from an ancestral American green kingfisher which crossed the Atlantic Ocean about one million years ago. A more recent suggestion is that the pied kingfisher and the American green kingfishers are derived from an Old World species, with the pied kingfisher or its ancestor losing the metallic colouration afterwards.

When perched the pied kingfisher often bobs its heads up and down and will sometimes raise its tail and flick it downwards. It calls often with sharp *chirruk chirruk* notes.Unlike some kingfishers, it is quite gregarious, and forms large roosts at night.

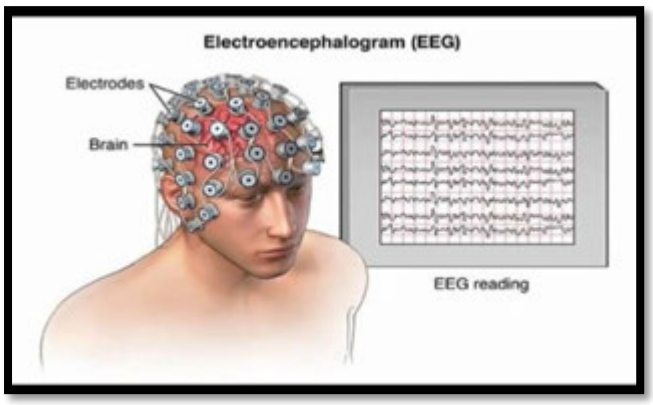
This kingfisher feeds mainly on fish, although it will take crustaceans and large aquatic insects such as dragonfly larvae.It usually hunts by hovering over the water to detect prey and diving vertically bill-first to capture fish. When not foraging, it has a straight rapid flight and have been observed flying at nearly 50 km/h. In Lake Victoria in East Africa the introduction of the Nile perch reduced the availability of haplochromine cichlids which were formerly the preferred prey of these birds.

It can deal with prey without returning to a perch, often swallowing small prey in flight, and so can hunt over large water bodies or in estuaries that lack perches that are required by other kingfishers.

The breeding season is February to April. Its nest is a hole excavated in a vertical mud bank about five feet above water. The nest tunnel is four to five feet deep and ends in a chamber. Several birds may nest in the same vicinity. The usual clutch is three to six white eggs. The pied kingfisher sometimes reproduces cooperatively, with young non-breeding birds from an earlier brood assisting parents or even unrelated older birds.

6. Electroencephalography

Ku. Afrin Pathan
B.Sc. Sem-VI



The discovery of Electroencephalography (EEG) in 1929 by the German Psychiatrist Hans Berger was a historical break through providing a new neurologic and psychiatric diagnostic tool at the time, especially considering the lack of as those now available in daily practice. An Electroencephalogram is a test used to evaluate the electrical activity in the brain. Brain cells communicate with each other through electrical impulses An EEG can be used to help detect potential problem associated with this activity.

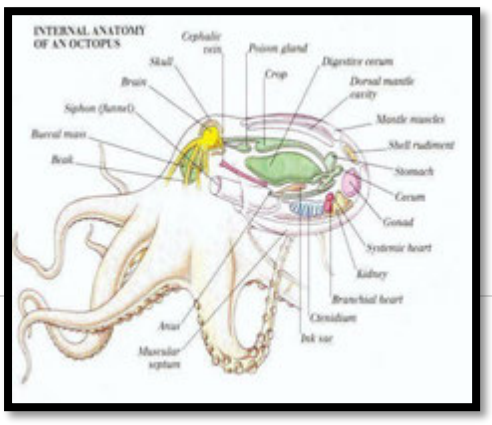
Human brain consisted of millions of neuron which are playing an important role for controlling behaviour of human body with respect to internal/ external motor/ sensory stimuli. These neurons will act as information carriers between human body and brain. Understanding cognitive behaviour can be visualized in terms of motor and sensory states such as eye moment, up movement remembrance attention hand clenching etc.

EEG is used to detect problems in the electrical activity of the brain that may be associated with certain brain disorders.

1. Seizure disorders (such as epilepsy).
2. Head injury.
3. Encephalitis (inflammation of the brain).
4. Encephalopathy (disease that causes brain distinction).
5. Memory problems.
6. Sleep disorders.
7. Stroke

7. Interesting Facts about Octopus

Ku. Priti Chakole
B.Sc. Sem-VI



Octopus have three hearts: One pumps around the body;

the other two pump blood to the gills. The reason for this impressive cardiac hardware probably comes down to the unusual composition of their blood.

Unlike vertebrates that have iron-rich haemoglobin packed into red blood cells,octopuses-along with some tarantulas, scorpion and horseshoe crabs-have copper-rich haemocyanindissolved directly in their blood(this means their blood is blue).

Haemocyanin is less efficient than haemoglobin as an oxygen transporter. The three hearts helps to compensate for this by pumping blood at higher pressure around the body to supply the octopuses' active lifestyle.

Two of the hearts work exclusively to move blood beyond the animal's gills, while the third keeps circulation flowing for the organs. The organ heart actually stops beating when the octopus swims, explaining the species'penchant for crawling rather than swimming which exhausts them.

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8. The world's biggest bee-Wallace's Giant Bee.

Ku. Geeta Talmale
B.Sc. Sem-VI

The Wallace's giant bee was discovered by britiesh naturalist Alfred Russel wallaces during an expendition trip to the Indonesia island of Bacan in 1858 .He found the bee on last day of exploring the island Describing it he said it was a large black wasp like insect with immense jaws like a stagbeetle .

Wallace's gaint bee been lost to science foe almost 40 year has been discovered in wilspecies megachile pluto also known aa Wallace's gaint bee is a round four time bigger than the European honey bee .

It is estimated to have a wingspan of around 2.5 inches and was enormous beetle likw

jaws it uses to gather resin and for its nest.

Alfred wallaces said female bees appear to be " very docile ", and that unlike social honeybees, they do not tend to sting. The vast majority of the 20,000 known species of bee in world are quite calm and not aggresive" , he said . "The female Wallace's giant bee that we found was very calm and unthreatening and showed no sign of aggressive toward our team.

The team now hopes to carry out more research on the species and raise awareness of it in order to protect it from extinction - over the last 20 year ,Indonesia has lost huge areas of forest to make way for agriculture . The huge size and apparent rarity of species has also made it a target for wild life trade the team hopes that raising awareness of Wallace's gaint bee that more people will be interested in protecting it.

9. NEEM – A Village Pharmacy

Ku. Najima Khobragade
B.Sc. Sem-VI

NEEM (Azadirachta indica)

Neem products are also used in selectively and controlling in plant pests. Neem is considere part of Ayurvedic medicine neem is also called as village pharmacy. All part of neem plant used for preparing many different medicine and particularly skin disease.

The neem plant is a fast growing along living trees, highly regarded and many used of benefits. The bark, leave, disorders, bloody, intestinal worms, Stomach upset, skin ulcers disease of heart and blood vessels. (Cardiovascular disease) fever and liver problems etc.

Neem trees can be used preparing cosmetic oil (soaps and shampoos ozone as well as location and other).

NEEM LEAVES FOR HAIR

Neem leaves scalp and hair issue:- Add a cap of fresh neem leaves to bioling water, and use this water to rinse your hair after shampooing hair. The antibacterial properties of neem help to treat dry scalp, Dandruff and hair fall issue.

In rich in vitamin E and fatty acids that help improve skin elasticity and provide retain moisture. The neem oil with treat acne .The inflammatory and analgesic agents swelling and pain associated with acne outbreak.

ADVANTAGES:-

* Purify the blood; prevent damages caused by free radicals in body remove toxins, treat insects bites and ulcers.

* Neem eaves have antibacterial properties which is it work wonders on infections.

10.Herbal Medicine

Ku. Priyanka Chachane
B.Sc. Sem-VI

Herbal medicin is an interdisciplinary branch between herbal Medicine and Ayurveda and it covers all the fields of herbal medicine releted to Botany , pharmacognosy , phytochemistry, phytotherapy, Ayurveda and agriculture science. Herbal medicine are very useful for the health.They are sold as tablets, capsules, powder, teas, extract and fresh or dried plants.The herbal part of a remedy may come.from the leaf ,flower, stem,seed,root,fruit or bark of the plant and it may be used to treat wound herbal medicine is considered to be the most ancient form of healing .

Herbs contain a large number of naturally occurring chemicals that have some type of biological activity .Herbs work in a similar fashion to many pharmaceutical preparations for example; the malaria medicine quinine is extracted from the bark of the cinehona tree.

Herbal remedies that are taken internally include liquid herb extracted, teas, powders and herbal remedies that are applied externally include baths, oils, compresses plasters.

Herbal medicine offers treatments for virtually every ailment affecting any body system common condition seen by herbalist include , skin problems such as psorians, acne and eczema digestive problems such as peptic ulcer , colitis irritable bowel syndrome, heart & circulatory condition such as angina , high blood pressure.

1. **EXAMPLES OF HERBAL MEDICINE**

☆ **Aloe Vera: -** They are used to reducing the risk of infection for wounds, cut, burns and reducing inflammation.

☆ **Bryophyllum, panfuti: -** The leaf or its juice is taken for diabetes.

☆ **Garlic: -** Herbs prevent heart disease lower cholestral and blood pressure improves digestive health.

☆ **Chamomile: -** Improves overall skin health, Relieves pains, aids sleep.

☆ **Tulsi: -** Tulsi is taken as the herbal tea, Tulsi help in curing malaria, juice of its leaves gives relief in cold, fever, bronchitis and cough..

11. NEW DISCOVERIES IN SCIENCE

Ku. Pallavi Fulzele
B.Sc. Sem-VI

Researchers use nanoparticles to treat snake bites!!

Venomous snakebites affect 2.5 million people, and annually cause more than 100,000 deaths and leave 400,000 individuals with permanent physical and psychological trauma each year. Researchers reporting in PLOS Neglected Tropical Diseases have now described a new approach to treating snake bites, using nanoparticles to bind to venom toxins and prevent the spread of venom through the body. "Synthetic polymer nanoparticles bind elapid snake venom toxins and inhibit venom-induced dermonecrosis."

Saving the Rainforest with Old Cell Phones!!!

Rainforest Connection could be saving the rainforest with old cell phones!
Rainforests have some of the most complicated sounds capes on the planet. In this dense noise of insects, primates, birds, and everything else that moves in the forest, how can you detect the sounds of illegal logging?
The old cell phone you have sitting in your desk drawer may have the answer
Source: Rainforest Connection

How do you go about saving the rainforest with old cell phones?
After a visit to the rainforests of Borneo, physicist and engineer Topher White was struck by the sounds of the forest. In particular, the noises he couldn't hear.
While on a walk, White and others came across an illegal logger sawing down a tree just a few hundred meters away from a ranger station.
This incident set White thinking that perhaps the best way to save the Earth's precious rainforest is to listen to its loggers and poachers. The innovation he came up with, Rainforest Connection, uses old cell phones to help to save the planet in a big way.

★ **Turning Apples into Ears: Creativity in the Lab!!**

When you think of a scientific laboratory, you probably don't imagine it to be a place to play, but it's this play that's bringing us to some great new innovations.
Creative scientists are embracing this play in the laboratory, and it's leading to some truly remarkable breakthroughs, including but absolutely not limited to, making ears out of apples.

Andrew Pelling's lab takes a different approach to science. His work combines creativity, out of the box thinking, and most importantly, plays with the scientific method.

His lab creates remarkable and diverse innovation by inviting unorthodox ideas to his scientific process. With the help of other scientists, artists, engineers, anthropologists, you name it, Pelling is pushing forward possibility by leaps and bounds.

Here he is on the TED stage discussing his lab's work on a potential new way for us to grow body parts.

Exploring the 8 Sense!

How do we make the most of our 8 senses? And no, that is not a typo.
We all know the usual five senses: touch, smell, taste, sight, and sound. But scientists have recently added to that list, making the previous list of five senses into eight.
The three new senses are equilibrioception, thermoception, and proprioception. These formal words may sound a little confusing, but thanks to SciShow we can not only understand what the new senses are, but how they work and why scientists felt the need to add them to the list!
Now that we know the "new" senses, it does seem pretty logical to consider equilibrioception, thermoception, and proprioception as an actual "sense".
We've been using these parts of our brains forever to help us navigate, feel hot or cold, and keep balanced. Now we just know a little bit more about them.
Why did scientists pick these 3 to add to the list of senses? Are there more we could be using every day? At this point, only time and research will tell.

Seeing the Brain…With Diapers (What?)

Yes, you read that right. Diapers. They're helping us understand one of the most complicated systems of the body! Scientists at MIT have discovered a new way of taking a deeper look into the brain using the absorbent material found in diapers!

★ **Mucus Does A Lot More Than Just Leak From Your Nose**

Think of it as your body's sticky little security guard! (Or maybe housekeeper would make more sense?)
We all produce a lot of mucus (about 1 liter a day on average!), yet most of us don't actually know what superpowers this substance actually has. That changes now.
Magnification of a human mucosa — a membrane that lines various cavities in the body and covers the surface of internal organs which can secrete mucus. This one is found in the human stomach.
We've all coughed it up, blown it out, and wiped it away, but have we ever thanked it? I know, I know, who likes an overproduction of mucus? It can be dangerous! Let alone pretty gross. But it's actually working really hard to keep us as healthy as possible and prevent us from becoming even sicker than we may be. Surprising, right?

12. SPARROW

Ku. Roshni Sakhare

B.Sc. Sem-VI

World sparrow day is 20th March. Sparrow is lovely beautiful and Social bird found everywhere in our surrounding. Sparrow eat food grain like wheat, etc. and larvae of mosquitoes and insect. The sparrow is a member of many food web. Sparrow helps in pollination in much plant. Pollination is a process by which the pollen grain of one flower reaches to stigma of other flower in sexual reproduction. Sparrow help in pollination in much plant. Sparrow eats larvae of many insects and mosquitoes which causes many diseases like malaria, dengue etc. Sparrow protects us from many diseases which are life threatened. Sparrow brings prosperity for us. We like to watch this small and lovable bird.

Due to modern technology old spacious building has been changed to the shapes where sparrow do not find their habitat.it is the most important reason of decline of population. The electromagnetic phone is also a major cause of decline the numbers of sparrow. Modern agriculture is also a important reason of decline the number of sparrow. In modern agriculture insecticide and pesticides are widely used. Which adversely.

Arrangement should be made for the availability of food grains and water for sparrows. Try to minimize the use of your cell phone. If possible, use anti radiation cover to protect environment. Wisely use insecticide and pesticides. Maintain you vehicle to minimize the pollution.

13. Deforestation

Ku. Tejaswi Bhendarkar
B.Sc. Sem-VI

Deforestation is the clearing or removal of forest or stand of trees from land. This is then converted into non forest use. Deforestation clearing or thinning of forests by humans. Deforestation are based on the area of forest cleared for human use removes of trees for wood products & for croplands grazing lands and clear cutting for agriculture. Which completely destroy the forest .without the forest Habits of animal and living things lost or die.

The most dangerous form of deforestation is destruction of rain forest. The

soil erosion is on invital result of deforestation. The causes of deforestation are to make more land available for housing and urbanization. To harvest timber to create commercial items such as paper, furniture. The solution of deforestation is green methods of production and utilization of resources can reduces deforestation. Particularly it is on reusing items and recycling more items, paper, and plastic. Homes are built on up on up. Deforestation can have negative impact on the environment. Eighty percent of earth land animals and plant live in forests and many cannot survive.

The trees are most important and protecting environment and to conservation, wildlife, rainforest .Trees are most important to give oxygen in human being. The best solution of deforestation is the stop the trees cutting, forest cutting and save tree to made the planet greener and healthier by effective solution for deforestation. We are all people alert and plant tree and save environment and save tree and stop deforestation, because living things are depend on trees . **Stop deforestation save environment.**

14. Honeybee

Ku. Trupti Kapagate
B.Sc. Sem-VI

Scientific Classification

Phylum: Arthropoda
Class: Insecta
Order: Hymenoptera
Family: Apidae
Genus: Apis

Honeybees live in colonies with one queen running the whole hive. Worker honeybees are all females and are the only bees most people ever see flying around outside of the hive. They forage for food, build the honeycombs, and protect the hive. Many species still occur in the wild, but honeybees are disappearing from hives due to colony collapse disorder. Scientists are not sure what is causing this collapse.

Honeybees are important pollinators for flowers, fruits, and vegetables. They live on stored honey and pollen all winter and cluster into a ball to conserve warmth. All honeybees are social and cooperative insects. Members of the hive are divided into three types. Workers forage for food (pollen and nectar from flowers), build and protect the hive, clean, and circulate air by beating their wings. The queen's job is simple---- she lays the eggs that will spawn the hive's next generation of bees. There is usually only a single queen in a hive. If the queen dies, workers will create a new queen by feeding one of the worker females a special food called "royal jelly". This elixir enables the worker to develop into a fertile queen.

Queens regulate the hive's activities by producing chemicals that guide the behavior of the other bees. Male bees are called drones----- the third class of honeybees. Several hundred drones live in each hive during the spring and summer, but they are expelled for the winter months when the hive goes into a lean survival mode.

15. How a zebra's stripes put bloodthirsty flies into a tailspin

Mr. Bhushan Bramhankar
B.Sc.Sem-VI

Why do zebras have stripes? Many have considered the classic quandary, Darwin included. Stripes could be camouflage, create herd-wide optical illusions to deter hungry carnivores like lions or Cruella de Vil, or maybe even help manage the animal's body heat. Despite so many plausible solutions, biologists from UC Davis finally cracked the case back in 2014.

Their comprehensive study found zebra stripes effectively repel bloodthirsty, biting flies, many of which carry lethal diseases.

Caro and his colleagues figured this out by studying a motley herd of three captive plains zebras and nine horses on a farm in the United Kingdom. First, they did a purely observational experiment. The team put zebras in one pen and horses in another, and counted the flies that attempted to land on each animal. While around the same number of flies bumped into both species, significantly more managed to actually land and linger on horses. That made Caro think that flies can't really see stripes from far away—and get confused by them up close.

The researchers took the next logical step: they dressed both species in stylish little black, white, and black-and-white striped coats to see how the flies would react. Again, they found that significantly fewer flies were able to successfully land on the zebra coats compared to the solid ones. And flies had no problem landing on the bare heads of horses wearing zebra coats, suggesting it really is the stripes giving the flies trouble. (Of course, more research is needed to say this for sure, since this sample size is pretty small. An ideal test might consist of an entire Kentucky Derby's worth of horses and zebras, and take place on the African savannah instead of blustery old England.)

Finally, the researchers took some high-speed video footage to really dissect how stripes turn flies into miniature bloodthirsty projectiles. Caro says it came down to the final 500 milliseconds before the flies made contact with zebra skin. "They just totally broke down in that last half second," he says. "There was absolutely no deceleration compared to how they'd decelerate to land on a horse."

Other scientists have performed similarly creative experiments to look at how biting flies respond to stripes. In January, a team published research showing striped body paint could protect humans against horseflies—a conclusion they reached by painting life-sized mannequins with stripes and covering them in glue. After parking the plastic figures in a field, the team catalogued which bugs stuck to which dolls.

But on the zebra front, much more research still needs to be done to understand just how their stripes confuse tiny fly brains. Caro has a lot more questions: Do they think a stripe is a gap, and try to fly through it? Do the stripes create confusing optical illusions like a barber pole that makes flies panic? Are models Bella Hadid and Kendall Jenner protected by their zebra print fashions? Will the rest of us be safer when these runway looks finally trickle down to the masses? Only further research can say for sure. "As always in science, once you've answered one question, you get three new ones," he says.

16. Genetic pollution: Causes and Effects

Mr. Gowardhan Mane

B.Sc. Sem-VI

Genetic engineering is a very useful technique as per the agricultural or animal breeding aspects. We can modify the genes of an organism to improve or changed its properties. This modification sometimes undesirably spread into the neighboring species via pollination or cross breeding which might either improve or deteriorate the properties of the organism. This unwanted deterioration of natural organism due to genetically tailored once cause genetic pollution. Genetically modifies species have been extensively synthesized over recent year increasing the risk of genetic pollution more than ever.

Genetic pollution is the contamination of unaltered or natural organism with modified genes from the genetically hybridized organism. According to environmentalist and various groups, genetic pollution is an undesirable phenomenon. Gene flow can take place undesirably from genetically tailored organism to non genetically modified one. This flow of a gene may occur via cross pollination, water pollination or animal pollination. Seeds of the genetically modified organism may reach the non modified organism through animal, water or cross pollination.

Genetic pollution can also occurs through the mating of wild and modified organism producing hybrids. This undesired mixing might cause genetic pollution by interfering with the genetics of the other organism. The process of gene flow for animals is about same as plants although it is not very common as the genetic pollution in plants. The gene flow from one animal to other can cause genetic pollution by altering certain properties of animal. Genetic pollution in animals is a very serious issue as it can pose harmful effect on that particular breed of organisms and sometimes can make them extinct.

GMO's or genetically modified organisms can cross pollinate and it becomes extremely impossible to clean the whole genetic pool. Genetically modified crops and the extensive use of herbicides can harm

birds, marine ecosystem, insects, amphibians and soil organism. They reduce pollute water resources, biodiversity and are unsustainable.

Control measures of genetic pollution:

1) New age modification should be developed which is not transferable or contaminable to other crops or animals.
2) Extensive use of herbicides and pesticides will deteriorate the quality of both natural and modified crops which should be strictly avoided.
3) There should be a limit or restriction over the percent of modification done in the gene.
4) The modification must only be done to improve certain properties lacking in the organism and not to completely modify it.

17. Contribution of ancient India to science

Mr. Jaypal Sakhare
B.Sc. Sem-VI

What contribution did India give to the progress of science? If someone asks such a question, he can get many kinds of answers. Some people say that 'nothing happened in India'. They also have some Western scholars. It has certainly not really happened in recent centuries in India. But before that, there were some great scholars in India, and that is exactly what India has contributed to the world's science and mathematics. Most Western historians conveniently forget about it. A tradition of survival in today's fantasy of the past and the dream of earlier fantasy has spread in our educated middle class.

In your Ramayana, there are many beautiful things in the Mahabharata. From that time, a picture of how the society, its castes and class system can be raised. From the things mentioned in it, who would have thought that in the past, we had laser-like rays, catastrophic weapons, missiles, chicks, planes and other things! But of course it was an idea. In fact, they were too big for the idea. They can be called 'science fiction'. And 'Science - Fiction' is important in the progress of real science. Many things first came to the fore in 'Science - Fiction' and they actually came into being. IamacAsimovan first introduced the idea of a robot, and in a few decades robos were created. Arthur Clark first visualized the idea of an artificial satellite and the technicians later produced it. And there have been many other things like this. In that sense, to imagine just such an advanced time, it was also a great type of thing; But that was all we had to do. 'It would be a mistake. There is no scientific proof to say so. Jayantrao Naralikar has written a lot for this many times. Etc. C. Early 1500 Shalvasutra was written.

The principles of measurement were presented in them. Since the time was counted by the durans, then the people started to call it 'Shalv'. During the Vedic period, those who make skeletons or platforms in the period of religious rites, have to measure their size. From then on, the mathematics about it also came out. The theory of Pythagoras written in Shalvasutras is written but it is not proven. In Euclid's Elements, however, its proof is found. Also, you already know that the area of a circle is

equal to the product of the square of the square of the radius of the circle and the πr^2 is equal to that. What is the price of this pi (π)? She is 3.14159 You knew the price, but that was not the reason why it was written, as well as the Diophantine equations in the 'Boudhayan' and 'Aesstham Sutra' of Krishna Yajurveda. Even if Western writers give Greek credit, they can find the origin of their shelves.

India gave the idea of zero to the world that is really a great gift. There are six scientists (six Vedanga) for the understanding of Vedas and the fulfilment of Vedic rituals. Of these, there are Shalvasutra in the VedangKalp. Kalpa means' Rituals. 'Geometry progressed in the context of these rituals. The fifth part of 'Vedanga Jyotish' is known about astronomy. But there is no deep insight into all this. For the first time in the fifth century before Christendom, Maharishi Kanad had argued about Indian Philosophy atom! That was the real name - Ulluk. But it should be written throughout the day, and in the night, farming of grains in the farm, hence the name 'Kanad' should have been called. His theory was that 'everything is made up of molecules'. Etc. C. Birhamimihar, born between 490 to 585, also became a great mathematician. There is some attraction in these planetary planets and because of their all-round power, the earth can be 'swamped' by itself. This was just one step before gravitation. . When you think of the fifth century, we get some written information.

This time in Aryabhatta, this time it was in the middle of this period. Aryabhatta had also thought and exercised the 'sign' functions of the geometry. He was also aware of the glow of the Earth and its movement around Axis. He knew exactly where the space was in the airplane. He says in a poem in Aryabhatia, which he wrote for six months, "Even though we think the sun in the sky, the stars revolve around the Earth, they are still stable and the earth revolves around them. This shows that he was ahead of many centuries ahead of others. He is the founder of the Earth, 39736 I Such a mathematical calculation was drawn. Today, it's 39843 I believe it. It was really an amazing kind of time to get the exact answer around! He said, 'Chandra does not have his own light but he is from the sun.' He used to wonder whether this planet travels in a cylindrical manner. It was also believed that there was a monster named 'Rahu' in the cylindrical illusion.

Aryabhattan had 365 days, 6 hours, 12 minutes and 30 seconds in one year! Writing on his Principles After several centuries, in the year 1864, Bhai Daji Lad received the first one. Then in 1875, Dr. When Ken published this post in Holland, all of them. The world knows! | Very big after Aryabhatta, 12th. In the century the mathematician Bhaskaracharya means Bhaskaracharya. He was also a mathematician and astronomer. Etc. C.

In 1658, he became a French mathematician named Pir the Fame. He made a question his friend. Frenic de Basi '. Q and y If this is brown, then 61 k '+ 1 = Yes. It was a question of how to solve this equation. This question was not solved by anyone over the decades. Finally, in 1732, Leonard Euler, another great mathematical disciplinarian, resolved it, and his appreciation was sown. But then people realized that Bhaskarachary had solved the question in 1150 AD. According to their reply, we were coming in as 22, 61, 53, 980 and 1, 76, 63, 19, 049. To overcome this, he used the method 'Chakravala'. This method was also given in the Princeton Principle Shiromani. Bhaskaracharya wrote a book titled 'Lilavati' for his widowed widow 'Lilavati', to

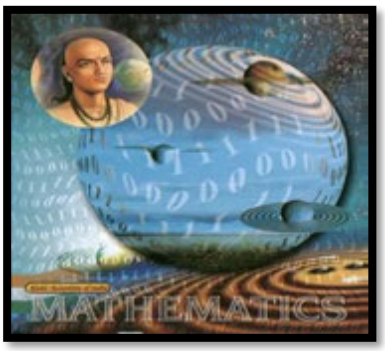
popularize her math. This book became so popular in that time that people read it and said, 'If you read it, then you can tell exactly what is done on any tree.' Bhaskaraja used mathematics in astronomy. His books 'Ganitadhyay' and 'Goladhae' were certainly great. It has to be said that they had reached very close to building 'Calculus' mathematical branch.

There was a lot of progress in medical science in India too. We have been running a medical tradition for 300 years. But now people are caused by ghostly because of the disease. That was the way. It is not necessary to say that by classical method, the body has begun to take treatment and retreat from Vedakala. This knowledge has been called 'Ayurveda (knowledge of life). 'Charak - Samhita', 'Sushruta - Samhita'. From the main four books of 'Ashtang - Heart' and 'Ashtanga - Collection', we learn about the knowledge of the day. The 'Charak-Samhita' has become very famous. In the Vedas, people learn from the 'Gurukul' method. Takshashila, Varanasi and Nalanda, these universities became very popular. What do you do if you do not get any education from Takshashila? Arts, classics, music, philosophy, religion (Hindu, Buddhist), law, chemistry, biology, medicine, astronomy, architecture, sculpture, history and

geography were all taught there. Apart from this, teaching in archery, riding on elephant, agriculture - industry, accounting presentation and astrology also taught there.

There is a lot of fun to teach witchcraft! Snake handling, exorcism, etc., too! The name of Taxila was so prominent that it was possible that students from other places like China, Syria, Arabia, Babylon, Persia etc. came to learn. In the present day Bihar, the university was also started as KalviNalanda, and in the fourth and thirteenth century, it reached Bharabharatola and it was still there.

There is no doubt that we have become a great thinker in science, mathematics. But after that Bhaskaracharan - after the twelfth century - we should see this progress in the open. Did you become less childish? The worst part is that this decadence continues even today. You did not even win Nobel Prize winners if you were to count on the fingers. On the contrary, whether it is due to inferiority, but science like 'Pushpak aircraft, missile and all other technologies or relativism, Quantum Mechanics' Our old people knew it or in our scriptures it is said to be 'like this - we just got hit by boasting. We do not have any lack of intelligence. So, if you start thinking about what is 'what happened before', why it is not happening today, and what you can do today, it will be of great benefit, and you will not come forward.



18. Amazing Facts about Snakes

Ku. Komal Kawade
B.Sc.Sem-VI

Amazing facts about Snakes….

- Snakes are carnivores (meat eaters).
- Snakes don't have eyelids.
- Snakes can't bite food so have to swallow it whole.
- Snakes have flexible jaws which allow them to eat prey bigger than their head!
- Snakes are found on every continent of the world except Antarctica.
- Snakes have internal ears but not external ones.
- Snakes used in snake charming performances respond to movement, not sound.
- There are around 3000 different species of snake.
- Snakes have a unique anatomy which allows them to swallow and digest large prey.
- Snakes are covered in scales.
- Snake skin is smooth and dry.
- Snakes shed their skin a number of times a year in a process that usually lasts a few days.
- Some species of snake, such as cobras and black mambas, use venom to hunt and kill their prey.
- Snakes smell with their tongue.
- Pythons kill their prey by tightly wrapping around it and suffocating it in a process called constriction.
- Some sea snakes can breathe partially through their skin, allowing for longer dives underwater.
- Anacondas are large, non-venomous snakes found in South America that can reach over 5 m (16 ft) in length.
- Python reticulates can grow over 8.7 m (28 ft) in length and are considered the longest snakes in the world.

19. Flying Rays: Marvels of Nature

Ku. Ravita Maske
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Some of the wonders of this world leave us speechless and in awe of nature. The flight of the Mobula Ray is one of these wonders.

Today on EWC, we bring you one of **nature's little known, but most spectacular rituals**.

Every year in May, a crashing, on a thunderous scale, can be heard on beaches along the southern Baja Peninsula in Mexico. That's when enormous schools of Mobula Rays congregate and leap as much as eight feet out of the water, sometimes three or four at a time.

To find this bit of wonder, we head to The Sea of Cortes which is the body of water that

separates the Baja Peninsula from mainland Mexico.

Among the many beautiful ways that animals communicate, flying rays stand out as a sight to behold.

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20. Camouflage

Ku. Nikita Waghade
B.Sc.Sem-VI



Animals have evolved different colors shapes and patterns that helps them survive .One of such technique is "Camouflage".

Camouflage is a type of coloration or pattern that helps an animal ,blend in with it's surrounding to hide from animals to hide from predators and to creep upon their prey .There are different type of camouflages including concealing coloration , disruptive coloration disguise and mimicry.

1) **Concealing coloration** - It allows an animal to blend into it's environment, hiding it from predators .It is highly useful adaptation. Animals such as snowy owl and polar bear whose white coloration help them blend in with the artic snow. Other animals can change their camouflage at will based on where they are. For example, marine creatures such as flatfish and stonefish can alter their coloration to blend in with surrounding sand and rock formations. This type of camouflage, known as background matching, allows them to lie on the bottom of the seabed without being spotted.

2) **Disruptive coloration** - Irregular patches of contrasting colors and tones of an animal's coat divert attention, making it harder to recognize .Tigers ,giraffes, zebras and some birds show disruptive coloration .The stripes of a

zebra's coat, for example, create a disruptive pattern that is confusing to flies, whose compound eyes have trouble processing the pattern. Disruptive coloration is also seen in spotted leopards, striped fish, and black-and-white skunks. Some animals have a particular type of camouflage called a disruptive eye mask. This is a band of color found on the bodies of birds, fish, and other creatures that conceals the eye, which is usually easy to spot because of its distinctive shape.

3) **Disguise -** Disguise is type of camouflages where an animal takes on the appearance of something else in it's environment .For example the leaf insect disguise themselves as leaves by changing their shading .The whole family of leaf insect show this camouflage.

4) Mimicry - Mimicry is a way for animals to make themselves look like related animals that are more

5) dangerous or otherwise less appealing to predators .This type of camouflage is seen in snakes , butterfly and moths. The mimic not only takes on the appearance of the object it is mimicking ,but also adopts it's behavior , assuming characteristics that are completely alien to it .For example , harmless milk snakes resemble poisonous coral snakes so that other animals will not attack them.

6) **Immobility** - Effective camouflage is possible only if an animal remain still.Many animals react to danger by freezing . For example if confronted with danger , reedbuck crouch down with their neck outstretched ,and by remaining motionless , become hard to distinguish from their surroundings .Some bird particularly ground -nesting birds such as nightjars ,squat down to reduce the shadow they make.

21. GLOBAL WARMING

Ku. Priyanka Nakade

B.Sc.Sem-VI

Global Warming has become a serious Environmental problem which threatens to put the future of humankind in peril according to Expert, the major factor behind this rising Phenomena of excessive emissions of carbon-dioxide, as well as other greenhouse, gases could lead to the flooding of lower lying coastal areas and

also cities. It is even feared that some countries might even disappear completely in near future. Another worrisome fallout of global warming manifest in the changes in the weather patterns leading to severe weather condition, drought, floods and other uncommon extreme weather conditions.

The biggest culprit is carbon dioxide a major constituent of the environment. It is causing a warming effect on the Earth surface Area by increasing the evaporation of water into the atmosphere. Over-exploitation of natural resources, coupled with population growth, technological advancement, industrialization, urbanization and deforestation are also leading to increase in the production of these gases, even when we cook food and we produce a huge amount of CO_2.

Several measures are required to curb the problem of global warming. We can contribute towards less production of CO_2 by adopting renewable energy instead of consuming oil, coat and gas. Tree plantation is another way out as we know that tree absorb carbon dioxide and produce oxygen. Hence we can save planet Earth only by tackling the problem of global warming, Lets resolve to reduce the production of CO_2.

22. Microscopes and Microscopes

Ku. Swati Sonwane
B.Sc. Sem-VI

Today, no pathologist knows microscope under the microscope, but it is not surprising that even the smallest components can be examined by checking blood or sputum. But to build such a good microscope, hundreds of thousands of years had to go in human history! That person would be very keen about everything around. Many people have already understood that a sunlight radiates from one magnifier to a point where a lot of heat gets produced from a canopy. The evidence that somebody used to say that in the 8th century before Christ was found in the excavation of Aceria! After that - the same people contributed in the development of microscopic. Etc. C. In 65, under the water column of 'Lucius Anes Seneca', any thing appears to be great, it was tad. Ptolemyin (E. 127 - 151) has written about him. He also used glass. The Arabian arabic writer also discussed about them, which was useful for bullying the image of anything that the Greeks and the Arabs previously knew. Euclidan had written about the reflections of flat and curved surfaces in his 'optics' book.No word has ever been used by the word Sarka's philosophy, Alchemist and writer wrote about the spectacles written by Roz Gantharam. But ha ha at It is said to be the first 'lens'. Many centuries later, in the 13th century, Alchemist and Le Bacon lit a lot about the properties of lentils. After most of the Dutch leaders were overbearing, the telescope was discovered and the microscope's findings progressed rapidly.

The campaign included the 15th and 16th centuries Leonardo da Vinci, Copernicus and Johnson. According to one thing, in 1608, a

man named Hans Lippersche made a specs in Holland, while a young man approached him with a magnifying glass, and imagined him to keep two lamps in front of each other. He told Hans. Hans and his father Johnson used two lamps. Microscope created. Such microscopes are called 'kappauch'. Microscope '. Improved Yacht's imagination.

Hans Lippersche, the first microscope

Galileo had made binoculars. After knowing that 1 people are taking Italy to showcase their power, Galileo has two stars to impress senior officials. For this, two magnisDoubling too virtually night, the church was stunned! The scientists also got the first compound microscope and many of them were pesticides. C. It was around 1610. : There were But when the true value of the microscope was made, it was hard to tell a person who was not a hard-core Catholic. Even if he used to meditate for scientific research, then the doctor's medical microsecope could be canceled by the degree made by Galileon! Malpigli did not even like to observe all the many insect pests. He left Bollona and did Pisa Mamoras. He joined him as professor in the university. It was there that the friends with their 'Govwani Boraili' became the real progress of the Madarsa like the big fish. Bareilly was a progressive thinker of mathematician and physiologist. They were both of the five important scientists in the 17th century.

| Dissection of animals and discussing hours on it. Due to Galileo and Decart, the ritual was 'Gaya', 'Swarmedam', 'Robert Hook' and both were overwhelmed. LeavenHook 'The Five Congregations For Personal Reasons Although Malpighi had to return to Bolola, Malpighi (1628 - 94), who had studied the same work on microscopic medicine from the University of Lyallona at the Lyolona University. Boloanamuddin atmosphere kept very much in that time. William Harvey's theory of blood circulation was religious and convulsive. So much so that the person who has the microscopists, After that, several plants of mulpipin were monitored under a microscope.

One mistake happened, he did not understand the process of reproduction. The idea was that there was a cobbled reed in the very earliest of the chickens, but there was a small cuddle that grew up there and finally break the egg. A man's liking is similar to that of a neat but fully prepared man! After this, Nehhemiye Gue, an English doctor, wrote a lot of important information about the reproduction of the plant by observing several plants and flowers and microscopic pollen in his life of 71 years (AD 1641 1712). During this time Swamaram (1637 was kept). Malappi was so full of it, but there was still a thick lack in Harve's theory, arterial blood flowed from the arteries, then the blood was 'impure' and then he seemed to fall, It was said that, but how does this blood flow from the blood vessels? In short, who connects the arteries and vein? During 1660 to 1661, Kalpi examined the code under the microscope, so he literally dissected hundreds, thousands of frogs and swamps. There is some relation between the complex blood vessels, your breathing process and the process of purifying the blood. He came to know from these observations Small arteries and small vein connection even. The smaller blood vessel, or suksmadar sakamadhe seen and harvecam Well sodavalam! 40) Turn these two people to the person: he was able to become a gunter but he did not practice Practice 3. He removed the red shawl, and the man drove his 6 wires to the insects.

He did more than 3,000 pests, Swarmadam in 1667 but he also practiced and discovered

red blood cells. The first one should be called a pest specialist. He removed many methods of dissection and also made many devices for it. Etc. C. In 1673, she joined an enigmatic group, and at the age of only 43 years of age, due to excessive sexual activity, extreme eating, sickness and emotional attachment to this strange religious group. C. Died in 1680! After the birth of his 100-year-old book, his name was published by the name of the Bible of Nature, the world was amazed at the knowledge about his insects! He called the Kana as 'cell'. There was a famous room for some religious monks in the religious monastery, and he thought it was a 'Sakoscopist'. Because he was saying this to the rooms about 'Prakash', he said that the room was called 'Cell that time'. He first presented the concept of steam engine. And the name of the wireless messaging was named, and the plant's design was first made. Apart from that, many cells, which were hijacked by observation, were greatly improved in the microscope found, so were Anthony Levenhook. Microscopists were the last of the 150's, but it was the last of the tradition, but they were all in conflict with Newton. C. In 1665, it became an important and effective form of 'Mycrographia'. His father's book was published. Mycrographia was a tradespeople industry. Anthony's schooling was inappropriate.

Textile industry, Alcohol miniature paintings. In this book, there were 57 paintings of self-styled investigator, alcohol examiner, government job, beautiful, accurate and subtle, and I immediately saw many of them doing the industry. At the end of the 16th year, the industry of drawing a picture, the eye of the fly, he started working as a treasure hunter in a shop in Amstedam. In time, he started his own small business in Elpha Samradar village and we saw him in the suburb of Piyanan to see them, and he also took care of them. She is married at the age of 22. He made a microscope that he could see, and he made 500 mruids in his life. Now there are only ten remaining days, in 1673 the Wrangelist graph, written by the Royal Society about Lehner, started correspondence between Lehnhauk and the Royal Society. Levenhook wrote 372 letters to his Yil Society in a jingling manner in his lively way. At the age of 91, C. His correspondence continued until he died in 1723. In this letter, he should make sure that he is well-versed in his personal habits, about his personal habits, his fluctuations in his business, along with his microscope, about life in the helmet. LeavenHecken examined the capillaries of molecule. He also grew a man's business. | But in about 1668, Robert Hook's book "Mycogafia" fell into the hands of Lendenck. And then somewhere in the middle he started to get interested in this microscopic case. In those days, they used to look through the lens to see the quality of the cloth. So maybe, but what do you think? He's literally hundreds of beautiful, beautiful. Microscope created He used to have one lamb each. If you look through the two-lens microscope, then there are some strange colorful lines around that object. So, there was not much use of compound microscope at that time. Then the same. How to bring the power of compound microscope from Magna? Then LeavenHook focused on it. Finally a 275-fold large image of the original/ Phoebe Ab, very small animals investigating under the donor joint microscope. . Pets. They are not considered as 'anemiluculas'. It was the first time I saw! It's got a lot of fun! Royal. On the day of the continuation of the people to become a member of the LT, he met people from different parts of the day ie today's Vartash! One day Russia had come to meet him. By the end, his last letter is his last letter, his daughter's picturesque image of the

images shown in the microscope. When tested, it was possible to remove it. By 1831, the 'win' like donating animals in the United States was just an ISCSI microscope. After this, John Dowland, Amissi, Charles Spencer, Ann Ambe, Robert Tols made a number of improvements in microscopes.

In 1831, Brown became a man. For the first time, for the first time Bhat was under the microscope. It was a rumor. In 1873, the microscope was mounted on the wheels of a 26, after which he was picked up. Today's C from 1880 to 1890 E. O Even Louis Bachur and Robert Coke used this device to make me excite the 'Peter the Great', and after science falsely shouted it! So C. 1723 Ultra Microscopy, Dark Field Microscopy Chana remained active till death. The Atomic Force Microscope was created in 1986, with a single strand of 26 microscopes and an electron microscope in 1931. After this progress continued. And when the atom = In 1645, the first bioincular electron or the DNA of the machine was created very quickly. Science used to be used when both people used to see it clearly. Bonus' began to be a bit higher! Made the horizontal microscope. Wilson made Madshak in 1710 the 'Schuy Barrel' method. Etc. C. In 1807, it was 'Walston'. On the other hand, he had sent his most beloved and excellent 26-octane Peshwa! After this the technology progressed very much.

23. Sustainable Energy from Algae and Much More.....

Ku. Tanuja Kapgate
B.Sc.Sem-VI

Have you ever avoided a floating glob of green algae while swimming in a lake?

What if that go could be the new generation of renewable energy? Algae may be our destiny. Did you know that algae is the most promising and sustainable source of biofuel? It can be grown on land or seas even purify waste water. It doubles its mass in a few hours and can be harvested daily rather than seasonally like conventional crops used as biofuel sources. And best of all for every gallon of fuel, we will also get 10 pounds (16 kg) of food to go with it! Algae could potentially produce up to 60 times more oil per acre than land based plants. Search for new innovation in sustainable biofuels landed on corn and soybeans, while algae was right there, hiding in plain sight, on slippery stone paths and in every single pond on earth. And that's a good lessons for us what if Mother nature has clever, even simple, solutions to almost all our problems?

Let's start with something that is usually pretty boring: a graph. But look carefully at the far right column. This is an amazing window into possibility:

24. “FACTS ABOUT YOUR CAT’S TAIL"

Ku. Trupti Mishra
B.Sc. Sem-VI

A cat tail has 19 to 23 vertebrae, about 10 percent of the total number of bones in her body. An extensive group of muscles, ligaments, and tendons hold the tail together and provide its amazing mobility. The average cat tail length for a male is 11 inches, and for a female its 9.9 inches.A cat with a whipping tail can mean it's on alert, nervous or potentially aggressive, and should not be touched. On a calm cat, a straight tail and hooked tip is a greeting, while an aggressive cat's tail may just be straight-up. Cats that are afraid of something tend to have an arched back and tail up and puffed.

25. Save water save life

Ku. Pratima Gadwar
B.Sc. Sem-VI

Water is necessary for me, water is needed for domestic, agricultural and industrial purposes. Three-fourth of Earth's surface is covered by water bodies.97 per cent of this water is present in oceans as salt water and is unfit for human comsumption.Fresh water accounts for only about 2.7 per cent .Nearly 70 per cent of this occurs as ice sheets and glaciers. Antarctica and other inaccessible places. Only one percent of fresh water is available and fit for human use.So it is very important to conserve this precious resource. And yet we are contaminating the existing water resources with sewage, toxic chemicals and other wastes. Increasing population and rapid urbanization has led to over - use of water resources leading to water pollution and scarcity Water scarify can be defined as a situation when people don't have enough water to fulfil their basic needs. India is one of the many countries' that are facing water scarcity today. In Rajasthan and some parts of Gujarat, women have to cover long distances on foot in order to get a pot of water. There are different methods to deal with water scatcity.Rain water harvesting is she best and most suitable method. Forest and other vegetation cover reduce surface runoff and recharge ground water. So practice afforrstation we can also promote water conservation through media and by conducting public awareness programs. By processing these simple steps we can conserve water and ensure the availability of water to future generation.So don't tarry; start saving each and every drop of water. Let our motto be **“save water, save life, save the world."**

26. Super Food- Black Rice

Ku. Champa Bishwas
B.Sc. Sem-VI

Black rice has cultural history called Forbidden or emperor's rice. It was reserved for the emperor in ancient China and used as a tribute food. In the time since it remained popular incretin regions a china and recently has become prized worldwide for its high levels of antioxidants despite its long history, the origin of black rice has not been clear black rice cultivars are found in location scattered throughout Asia however most cultivated rice (species oryza sativa produced) white grains and wild relative oryza rutipogen has red grain.

Black rice has anti-metastatic breast cancer activity. We now know that rice has a pernickety personality in that it absorbs arsenic from surrounding soil and water. Thisinformation first comes out in 2006. And it's been verified time and again arsenic isn't good for the immune system or is damaging to the vulnerable cells that line the gut where most of our immune system lives darn. Whether black rice absorbs less arsenic because of its pigment content, is unknown its black pigment helps tight virulent breast cancer cells. Black rice unlike any other rice because of its black pigments contains anthocyanins. Black rice anthocyaninswhen fed orally to mice who had ErB2 positive human breast tumour cells, blocked cancer growth.and…complication..

27. Swine Influenza (Swine Flu)

Miss Seema K. Kusram
CHB Lecturer
Department of Zoology
S.S. Jaiswal College, Arjuni/Mor

In India winter is coming now and there's a flu season.

- H1N1 is a flu virus.
- Swine flu viruses may mutate (change) so that they are easily transmissible among humans.

- The H1N1 swine flu virus appeared in the U.S. in April 2009 and never went away.
- Symptoms of swine flu in humans are similar to most influenza infections: fever (100 F or greater), cough, nasal secretions, fatigue, and headache.
- The incubation period for the disease is about one to four days.

Why Flu Season Strikes in winter

A study from the National Institute of Child Health and Human Development (NICHD) found that the virus forms a special outer coating in cold weather that helps it fly through the air — and into another person. Flu is an airborne illness that can be transmitted to another person from as far as six feet, according to the NIH. This cold-weather coating simply helps along this process.

What is Swine Influenza?

Swine flu, also known as 2009 H1N1 type A influenza, is a human disease. People get the disease from other people, not from pigs. The disease originally was nicknamed swine flu because the virus that causes the disease originally jumped to humans from the live pigs in which it evolved. The virus is a "reassortant" - a mix of genes from swine, bird, and human flu viruses. Scientists are still arguing about what the virus should be called, but most people know it as the H1N1 swine flu virus. In the summer, the wet, humid air pulls the virus to the ground, so it's less likely to be inhaled by someone else.

How many swine flu viruses are there?

Like influenza viruses in humans and other animals, swine flu viruses change constantly. Pigs can be infected by avian influenza and human influenza viruses as well as swine influenza viruses. When influenza viruses from different species infect pigs, the viruses can reassort (i.e. swap genes) and new viruses that are a mix of swine, human and/or avian influenza viruses can emerge. Over the years, different variations of swine flu viruses have emerged. At this time, there are three main influenza A virus subtypes that have been isolated in pigs in the United States: H1N1, H1N2, and H3N2.

How is swine flu transmitted?

Swine flu is transmitted from person to person by inhalation or ingestion of droplets containing virus from people sneezing or coughing; it is not transmitted by eating cooked pork products. The newest swine flu virus that has caused swine flu is influenza A H3N2v (commonly termed H3N2v) that began as an outbreak in 2011. The "v" in the name means the virus is a variant that normally infects only pigs but has begun to infect humans.

Swine Flu Symptoms

These, too, are same as seasonal flu. They can include:

- Cough
- Fever
- Sore throat
- Stuffy or runny nose
- Body aches
- Headache
- Chills
- Fatigue

Like the regular flu, swine flu can lead to more serious problems including pneumonia, a lung infection, and other breathing problems. If you have symptoms like shortness of breath, severe vomiting, pain in your belly or sides, dizziness, or confusion, call your doctor

How Is It Treated?

Some of the same antiviral drugs that are used to treat seasonal flu also work against H1N1 swine flu. Oseltamivir (Tamiflu), peramivir (Rapivab), and zanamivir (Relenza).

Is there a vaccine for swine flu?

Just as there are influenza vaccines for people, there are specific swine influenza vaccines available for pigs.

Do's and Don'ts:

- Avoid close contact with people who are having respiratory illness.
- Sick persons should keep distance from others.
- If possible, stay at home, away from work, school, and public places when you are sick.
- Cover your mouth and nose with a tissue or handkerchief when coughing or sneezing.
- If you have no tissue or handkerchief you should not clean the nose with the hands but with the cuff of your shirt or clothes.
- Washing your hands often with soap or alcohol based hand wash will help protect from germs.
- Get plenty of sleep, be physically active, manage your stress, drink plenty of fluids, and eat nutritious food.
- Persons who develop influenza-like-illness (ILI) (fever with either cough or sore throat) should be strongly encouraged to self isolate in their home for 7 days after the onset of illness or at least 24 hours after symptoms have resolved, whichever is longer.

Is there a vaccine for swine flue?

Just as there are some influenza vaccines available for people in India are:

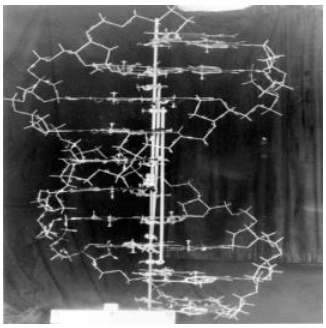
Brand Name	Combination Generics	Manufacturers	Type
Agripal	Influenza Vaccine (A&B), H1N1 Vaccine (Swine Flu)	Chiron Panacea (Panacea Biotec Ltd)	Injection
Fiuarix	Influenza Vaccine (A&B), H1N1 Vaccine (Swine Flu)	Glaxo Smithkline Pharmaceuticals Ltd.	Injection
Influgen	Influenza Vaccine (A&B), H1N1 Vaccine (Swine Flu)	Lupin Laboratories Ltd.	Injection
Influvac	Influenza Vaccine (A&B), H1N1 Vaccine (Swine Flu)	Solvay Pharma India Pvt Ltd	Injection
Nasovac	Influenza Vaccine (A&B), H1N1 Vaccine (Swine Flu)	Serum Institute of India Ltd.	Injection
Vaxigrip	Influenza Vaccine (A&B), H1N1 Vaccine (Swine Flu)	Sanofi Pasteur	Injection

28. DNA – The Magic Molecule

Mr. Rupchand Y. Dongarwar
(CHB Lecturer)
Department of Zoology
S. S. Jaiswal College, Arjuni/Mor.

History of DNA: - Deoxyribonucleic Acid

Before delving completely into synthetic biology, I feel that it is important to discuss DNA. After all, DNA is a synthetic biologist's medium. Had it not been for the work of some very clever scientists in the first half of the 20th century, it would not be possible to do synthetic biology.



Biologists have known about DNA's existence since 1869, when **Johann Friedrich Miescher** isolated an unknown material from white blood cells collected from the pus on discarded bandages. This substance came to be known as **Deoxyribonucleic acid,or DNA**. Over the years DNA's role as the carrier of genetic information was gradually established by famous experiments such as **Oswald Avery's** work with ***Streptococcus pneumonia*** in the 1940s. **Maurice Wilkins** and **Rosalind Franklin** gives an X-ray of a DNA crystal would give them an idea of the general shape of the molecule. However, **James Watson** and **Francis Crick** are the scientists most often associated with DNA. They shared the Nobel Prize with **Maurice Wilkins** in 1962 in part for their discovery of the structure of DNA, which was published in Nature in 1953. Sadly, **Franklin** died before the prize was awarded, and this prize is not given after death.

Structure of DNA: -To visualize the DNA molecule, first try to imagine a ladder, and then twist it into a spiral. The sides are made out of sugar and phosphate molecules stacked one on top of the other. The rungs are formed by bases – large molecules that contain the genetic information. These bases are the familiar DNA 'letters' known by their initials, **A (adenine), C (cytosine), G (guanine) and T (thymine).**In the DNA molecule, A will join to T (but not to C) and G will join to C (but not to T). If you look down one of the DNA chains, the bases can come in any order, but they always bond strictly with a matching base on the opposite chain. These **'complementary'** pairs fit like the pieces in a jigsaw, holding the ladder together.

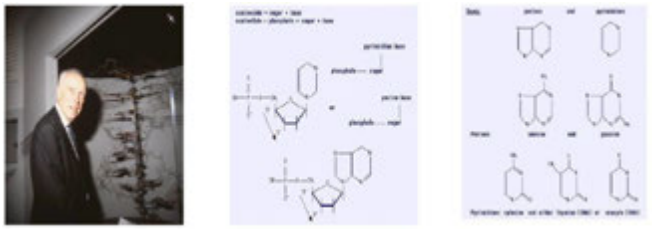
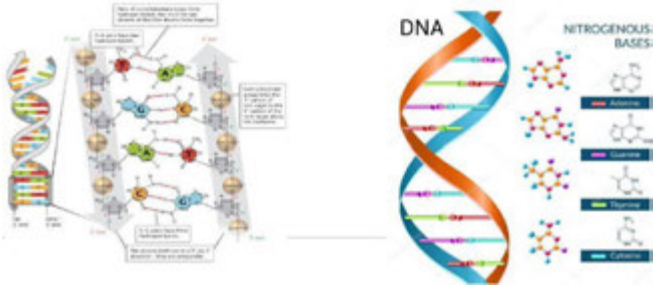


Fig.-Model & componant's of DNA



DNA – The Magic Molecule: - The DNA molecule is immensely long and thin. In fact there are two meters of DNA neatly packaged into chromosomes and every cell has the full amount.Cells are busy places, constantly transforming food into energy, removing rubbish, dividing and growing. The DNA runs it all.

But **the magic of DNA is that it also has the power to determine what we inherit from our parents.** DNA passes on the information on how to build a body from one generation to the next. But how? It is amazing to think that DNA can store the full set of instructions to make a whole organism. But how can such a complex set of instructions are written with only four letters? Because the letters work as a code. **The real power of DNA comes from the genetic code.**The sequence of A, C, T and G along the DNA molecule form a coded instruction which the cell uses to make proteins.

Some Magical key things about DNA: -

- DNA really is digital?, 2 bits per nucleotide, 100 megabytes of DNA for the ***puffer fish***, 750MB for a human being, 5 kilobytes for a ***virus***, etc.
- Fully compatible, atom for atom, across all life.
- Where to download the human genome & what it looks like on disk, plus what is in there.
- The DNA helix is internally redundant, like a RAID1 array, and on top of that there is a spare helix too. Except sometimes, and then some examples what the effects of that are.
- How DNA relates to RNA relates to proteins.
- The stupendous 3D printer inside our cells (Ribosome) that builds proteins from DNA and the 22 amino acid building blocks, and how 3 DNA nucleotides map to these building blocks ('the codon table').
- Function calls: how the insulin DNA converts to pre-pro-insulin, and sends a signal to the insulin receptor, and why this is a stupendous computing challenge.
- How bacteria use DNA and proteins to implement an if/else if/else statement to regulate glucose levels using Boolean logic ('Lac operon').
- How one bacterium implements a simple algorithm with DNA to find food?
- The three domains of life & their suspected origin, and how the original two domains merged to create us, plants, fungi etc., and how we know.
- How DNA does (stupid) code reuse and movies about that (Okazaki fragments).
- A little bit on CRISPR, genetic fingerprinting, how the first genome sequenced was one guy who founded the consortium.
- How biological viruses are really doing exactly the same thing as when we exploit computers and launch 'worms'.
- Genes are the part of DNA that actually contains the information to make a protein. So if you take any stretch of DNA, you will find many different genes along it, each making a different protein. Estimates suggest that there are about 30,000–40,000 genes in the human genome.
- Together, these genes form the structures of your body and are responsible for making you look and function like you do.

PROJECT

Title: OBSERVATIONS ON REPTILIAN FAUNA AND THEIR MORTALITY IN AND AROUND ARJUNI/MORGAON TALUKA DIST-GONDIA (M.S.)

Introduction:

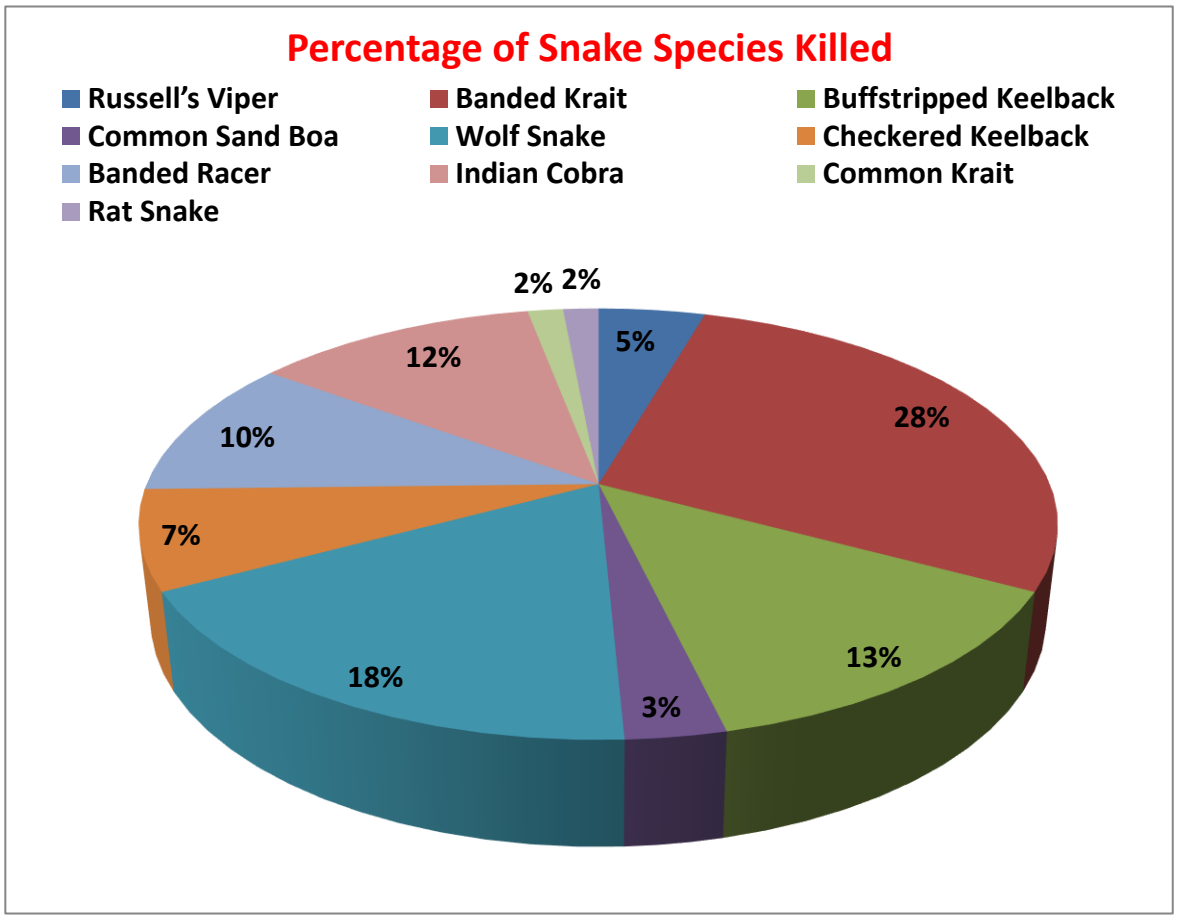
Reptiles are the most neglected & less studied group of animals; a survey study was undertaken by the students of B.Sc. Sem-VI (Zoology) under the guidance of Dr. G. T. Paliwal. A total 45 students were took actively took part. The main objective of this study is to promote awareness among the people & the masses that they are the responsible & accountable citizens of India, hence they should not kill the reptiles particularly snakes. To study the regional biodiversity & to develop practical wisdom in the students. To make aware people about ecological role of reptiles.

Observations & Result:

Students surveyed the various habitats animals observed were identified by using identification kees. The data obtained was analysed (Table: 1). 10 different snakes species were reported. Total 67 kills were reported. Out of the total kills reported the frequency of *Banded Krait* was highest found to be 19 times followed by *Wolf snake* 12, *Buff stripped keelback* 09, *Indian Cobra* 08, *Banded racer* 07, *Checkered keelback* 05, *Russell's Viper* 03, *Common Sand Boa* 02 & *Common Krait* 01 respectively.

Table: 1: Species wise Snakes kills reported

Sr. No.	Name of Snake Species	No. of kills
1	*Russel's viper*	3
2	*Banded krait*	19
3	*Buff stripped keelback*	9
4	*Common sand boa*	2
5	*Wolf snake*	12
6	*Checkered keelback*	5
7	*Banded racer*	7
8	*Indian cobra*	8
9	*Common krait*	1
10	*Rat snake*	1



TOURS

1. Fish Seed Production Center, Shivnibandh

2. Agro Research Center, Sakoli

A study tour was organised on 6th of August 2018 & during this we visit to Govt Fish Seed Production Center, Shivnibandh Dist. Bhandara & also to PDKV's Agro research Center, Sakoli.

At shivnibandh students observed various farm management procedures & the breeding operations of Indian Major Carps. Students also studied Induced breeding techniques, operation of Chinese Circular hatchery system. On the same day students visited

PKV's Agro-research Center. Dr. Usha Dongarwar, Programme Co-0rdinator of the research centre by her presentation informed in detail about various activities carried out at the centre.

- Students observed various rice varieties cultivated in research plots.
- Students were informed by the officials at the centre about various agro tools and new technologies used in agriculture.
- Informed about bio fertilizers, Azola cultivation. vermicomposting methods,
- Integrated pest management.
- Informed about animal husbandry.

Govt. Tussar Sericulture Centre:

40 Students of Sem-V (Zoology) with the assistance of faculty teachers visited Govt. Tasar Sericulture Centre at Arjuni/Morgaon so as to observe the procedures & various activities carried out there in. The officials & staff members provide our students a valuable guidance & knowledge about rearing of silk worm & also the silk processing.

Sericulture is one of the oldest industries in India and Asia. Sericulture is an agro-cottage, forest based industry, labor intensive and commercially attractive economic activity falling under the cottage and small-scale sector. The silk is the final product of this industry. It particularly suits to rural population working with agriculture, entrepreneurs and artisans as it requires low investment with potential for relatively higher returns. It provides income and employment to the rural poor especially, farmers with small land-holding and marginalized and weaker sections of the society.

The Maharashtra state is having a very good potential for sericulture and to undertake the production of quality bivoltine silk. In future the state will become 100% Bivoltine silkworm rearing in Mulberry sector. It is a serious need to establish the best trainings and research centers in the state to provide the best technologies suitable to the local mass and also to inculcate modern technologies in sericulture among the sericulturists and extension staff by upgrading their skills. As the state is nontraditional in silk production activities, it is essential to extend incentives on different activities as provided by traditionally silk producing states. The sericulture activity remained as a boon to the farmers in such adverse climatic conditions and to overcome the draught situations in Maharashtra. The farmers are very happy with this activity by earning good returns and are satisfied with sericulture. Thus future of the modern silk industry in Maharashtra is very bright and the state will take a big leap in coming years and will be at par with traditional silk producing states.

Photo Gallery

Mr. Bhushan Bramhankar receiving his prize.

Ku. Pratiksha Nakade receiving her prize.

Mr. Jaypal Sakhare receiving his prize.

Ku. Pallavi Deshmukh receiving her prize.

Ku. Pallavi Fulzele receiving her prize.

1st Prize in Annual Function 2018-19 (Theme: Pulwama Attack)

Cultural Events

Ku. Trupti Mishra : Annual Function Inaugural Programme anchor

Participation in Quiz Competition (Left to Right) - Mr. Gaurav Mane, Mr. Sameer Dongarwar, Mr. Aabasaheb Walode, Mr. Saurabh Fulsunge

Performance of Mr. Aabasaheb Walode in Annaual Function 2018-19


नॅक पुनर्मूल्यांकन :'ब'श्रेणी
वार्षिकोत्सव २०१८-१९


शिवप्रसाद सदानंद जायस्वाल महाविद्यालय
(कला, वाणिज्य व विज्ञान)


अर्जुनी/मोर., जिल्हा- गोंदिया (महा.)
नॅक पुनर्मूल्यांकन : 'ब' श्रेणी

Other Activities

Speech by Dr. G. T. Paliwal on Snake Awareness

Students learning *Azolla* growing techniques.

Rally for Snake Awareness Programme

-------Students learning Microtomy-------

Seminars and PPT's

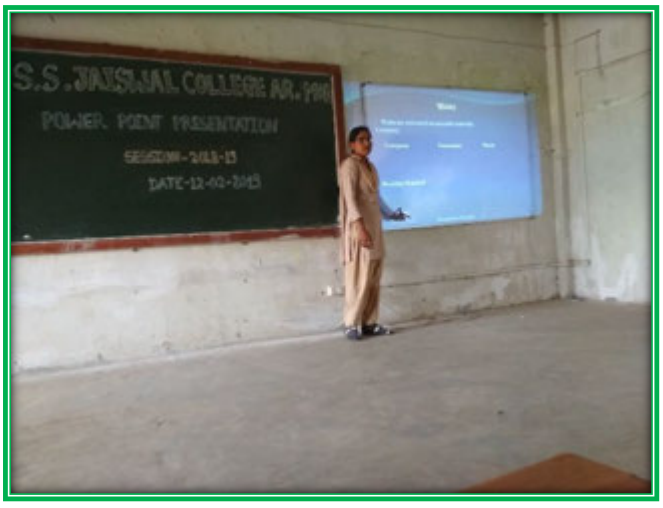
Mr. Aabasaheb Walode

Ku. Pallavi Deshmukh

Ku. Ravita Maske

Ku. Pratiksha Nakade

Ku. Pallavi Fulzele

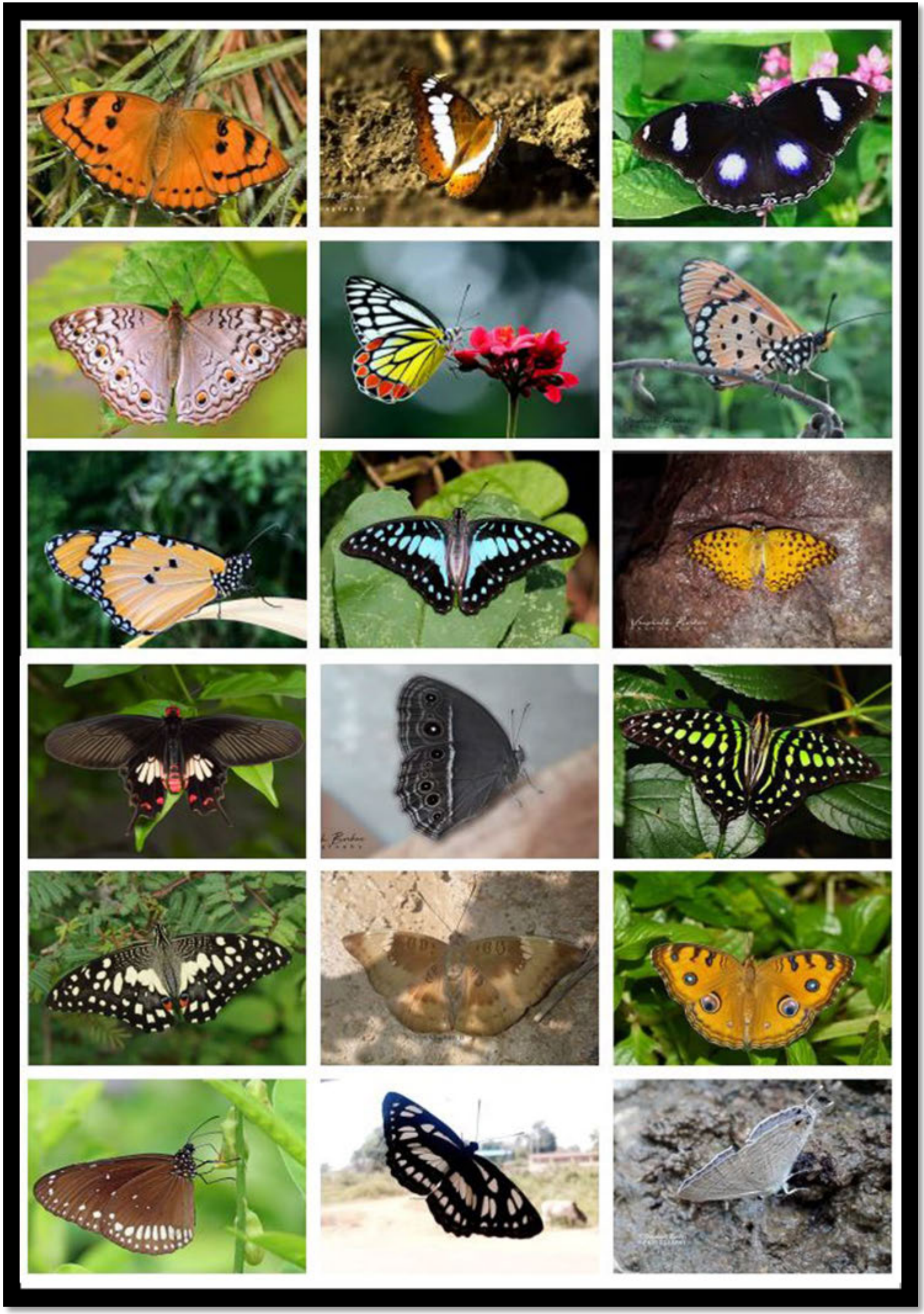


Ku. Kanchan Borkar

Ku. Afrin Pathan

Tours

Our Department in News



Courtesy – Vrushabh Borkar


"Life Below Water
For People and Planet"