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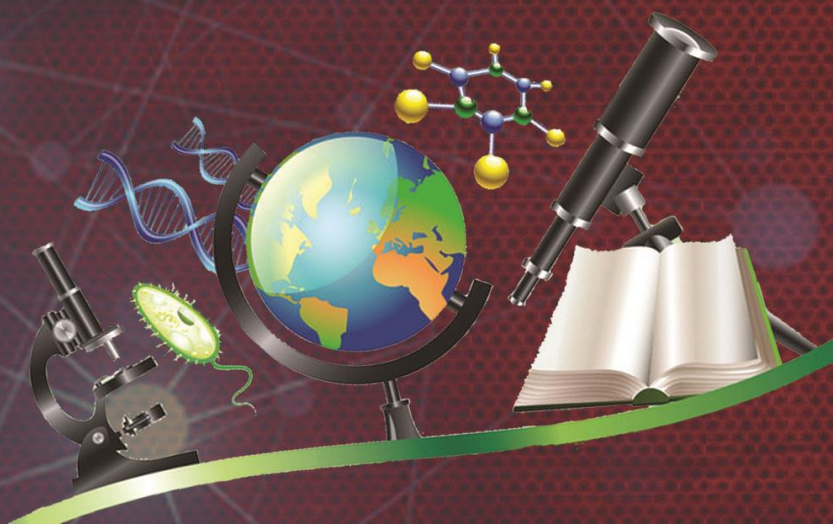

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I, Shri Dr. S. P. Jagadale hereby declared that the particulars given above are true to the best of my knowledge and belief.

Sign /-
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(The editor and publisher may not agree with the views expressed in articles.)

The Critical Element "Carbon"

The Element Carbon

Found in many forms, the element carbon is one of the most common elements in the universe. It is also one of the most important elements on the periodic table and forms the basis for all life as we know it! All of organic chemistry is based on carbon. Diamond, graphite and charcoal are all forms of carbon.

A History of Carbon

Unlike most elements, humans have been aware of carbon since ancient times. As early as 3750 BC, ancient Egyptians and Sumerians used charcoal, a form of carbon, to reduce various metals in the manufacturing process. The use of carbon continued until 1789 when Antoine Lavoisier listed carbon as an element for the first time. Many other forms of carbon have been discovered such as diamonds, graphite, graphene, and fullerene.

Fullerene even won a Nobel Prize in Chemistry in 1996 the prize went to Robert Curl, Sir Harold Kroto, and Richard Smalley. Carbon continues to be actively investigated and plays a vital role in all fields of chemistry.

Carbon in the Periodic Table

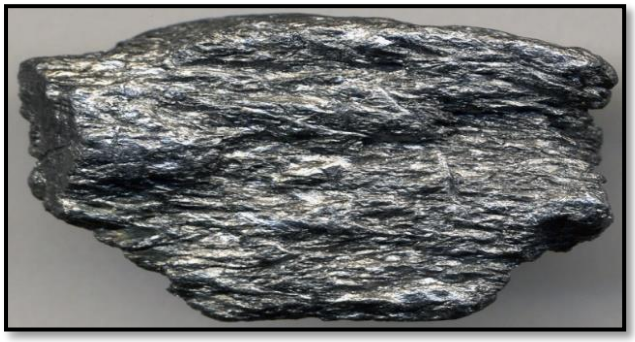
Carbon, with atomic number 6 and symbol C, likes in group 14 of the periodic table, to the right of boron and the left of nitrogen. The elements silicon, germanium, tin and lead are also in group 14. Carbon has some similarities to the metalloid silicon, but silicon cannot be the basis for life like carbon can. It is sometimes called the "king" of the periodic table.

Carbon is a non-metal, found in nature as graphite, diamond or fullerenes. It is tetravalent, having four electrons available to form covalent bonds. It occurs naturally as 3 isotopes – carbon 12, 13 and 14.

Common allotropes of carbon

There are many different forms or allotropes of carbon. One of the most common of these is amorphous carbon which does not have a defined crystal structure. Coal is the most common example of amorphous carbon. Diamond is another well-known

allotrope of carbon, with many uses, both industrial and cultural. The strong tetrahedral lattice of carbon-carbon bonds gives diamond its remarkable strength and characteristic shine. Pencils are an excellent example of another allotrope of carbon, graphite. Graphite consists of many large sheets of carbon sitting on top of each other. These sheets breaking off then is what enables you to leave marks on your paper with a pencil. There are also many other less common forms of carbon such as fullerenes and carbon nanotubes.



Interesting facts about Carbon

1. Measuring amounts of the radioactive isotope Carbon-14 can help us to determine the age of things such as archaeological artifacts and ancient documents.
2. Carbon nanotubes are one of the strongest materials in the world and have been proposed as a possible building material for some wild inventions such as a space elevator.
3. All life as we know it is based on carbon.
4. Over 10 million compounds that we know of so far can be formed by carbon, more than any other element.
5. Carbon is the 4th most abundant element in the universe but only the 15th most abundant element in the earth's crust.
6. All other elements' atomic weights are measured relative to carbon-12.
7. The name is derived from the Latin "carbo" meaning charcoal
8. Diamond is formed under great pressure deep in the earth's crust, and are usually mined from ancient volcanic 'pipes"

Common reactions and compounds

Carbon is used in numerous reactions in all branches of chemistry. One of the most common is combustion reactions, where a hydrocarbon reacts with oxygen to form carbon dioxide and water. Another important reaction with carbon is ocean acidification. This is when carbon dioxide dissolves in the ocean and reacts to form carboxylic acids, lowering the pH of the ocean. Carbon generally does not require significant effort to isolate. Coal, diamond, and graphite, are all pure, naturally occurring forms of carbon.

Carbon Compounds

Carbon can make a wide variety of different compounds. Two significant ones are carbon monoxide and methane. Methane has one of the highest per molecule warming potentials out of all the greenhouse gases. Carbon monoxide is a colourless odorless gas that can be fatal to humans. However, carbon

monoxide can also serve as a useful ligand for many inorganic reactions. Another category of interesting carbon compounds is pi-conjugated systems. The overlap of several pi orbitals to create a delocalized system of electrons is called a pi-conjugated system. The vivid colors that are formed make these compounds especially useful and pretty to look at.

The Element Carbon in organic chemistry

Organic chemistry is one of the largest subfields in chemistry and is based entirely on the element carbon! Carbon can form very strong bonds with other carbon atoms, making it one of the building blocks for most organic compounds. Carbon is also able to form bonds with many other elements such as oxygen, nitrogen, and hydrogen. The bonds formed between carbon and these elements form the basis for functional groups, which enable the creation of a wide range of compounds from pharmaceuticals to dyes! Carbon is unique in this ability.

Carbon and the climate

Levels of carbon in the atmosphere in the form of carbon dioxide have been rising steadily since the industrial revolution. This has been accelerating greatly in the last few decades and has led to drastic changes to the climate and a general increase in temperatures. This is because of the greenhouse effect, where the heightened levels of carbon dioxide in the atmosphere trap incoming sunlight and the earth warms as a result.

Although the earth has some natural carbon sinks, such as dissolved CO_2 in the ocean and organic plant matter, these sinks have not been able to keep up with the increased levels of carbon as a result of human activity. There is a great deal of active research investigating ways to mitigate and reverse this trend. This encompasses a wide variety of different areas. For instance, carbon capture technology is a way to possibly remove carbon dioxide from the atmosphere. Ways of generating energy without generating carbon, like wind and solar, is another area of active research.

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Article By

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"Elinor Ostrom: An Uncommon Woman Who Unraveled Tragedy of Commons"

Elinor Ostrom was the first woman to win the Nobel Prize in economics for her creative and rigorous work on the tragedy of the commons. She propounded a theory that common resources like fisheries, forests, oil fields, or grazing lands could be managed effectively by the individuals who use them through active participatory decision-making.

Elinor Ostrom was born on 7th August, 1933 in Los Angeles. She completed her BA with honors from the University of California at Los Angeles in 1954. After earning the Ph.D. in 1965, she shortly moved to Indiana to work at Indiana University. While rarely mentioning the discrimination she faced as a woman; she used to say that her appointment as a professor was made a year later only because nobody was willing to take morning classes at 7.30 in the department. She and her husband co-founded the interdisciplinary workshop in Political Theory and Policy Analysis in the university to provide an intense yet cooperative setting to develop her ideas while nurturing creativity and innovations in the younger graduate students.

Ostrom studied the interaction of the people and the ecosystems for many years. She explained that the use of exhaustible resources by groups of people, trade unions, cooperatives, trusts, communities could be rational. It would prevent resource depletion without government intervention or property rights framework. Collectively used natural resources are over-exploited and destroyed over a more extended period of time. She disproved the outcome through her field study on how small communities, groups of small people manage shared resources such as fisheries, forests, etc. She showed that jointly owned resources could be used appropriately and sustained by creating mutually established rules by active participants of the community to make this use economically rational and ecologically sustainable.

Ostrom demonstrated that the fishermen, herders, and small-scale

farmers could devise and uphold the institutional solutions to problems of commons adhering to laissez-faire principle and actions of state protagonists by displaying the necessity of institutions to resolve commons problem despite the institutions' not being imposed by the state. Her work is quite relevant not only to the local problem of commons but also to any situation where property rights are absent, as well as authoritative hierarchies to enforce laws and regulations. It proved to be as applicable and feasible in the case of irrigation systems in Nepal as it is in world politics. (Arrow, Keohane, & Levin, 2012)

In her masterpiece – "Governing the Commons: The Evolution of Institutions for Collective Action (1990)," she showed that the collective action problems could be overcome through the provision of self-made institutions by the active participants at massively different scales even though there is a lack of hierarchical government. However, she persistently added that it is essential that these institutions be braced and supported by the self-enforcing agreements and sustained through policies and strategies, which would be helpful to maintain the agreements aligning with the perceived self-interests of the participants.

In Ostrom's opinion, cooperation must be upheld through the interactions of reputation, trust, and reciprocity rather than through altruism. As active participants in society, individuals are neither trapped in inevitable tragedies of commons nor free of ethical and moral responsibility to create and sustain the incentives that would facilitate our mutually productive achievements and outcomes. Ostrom took much interest in the application of game theory methods to the commons issue and problems of cooperation which extended her work in the newer mathematic dimension. Depending on the quantitative as well as qualitative methodologies, she revolutionized the terms of commons problem and institutional challenges completely. Her innovative work and intellectual courage in the later years resulted in the active use of geographic information system technologies to map land-use changes to resolve the tragedy of commons. (Ostrom, 2009)

Her work in the later years focused on how humans interact with ecosystems while maintaining long-term sustainable resource yields. She conducted field studies on irrigation systems management in villages of western Nepal and on the management of pasture by locals in Africa. She studied how the communities have developed assorted institutional arrangements to manage depletable natural resources to avoid their exhaustion. Her work accentuated the multifaceted nature of human–

ecosystem interaction as well as claims against any singular "panacea" for individual social-ecological system problems (Janssen, 2012).

She worked as a lead researcher for the Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program (SANREM CRSP). She and her husband - Vincent Ostrom, advised the journal 'Transnational Corporations Review' in 2008. She became the Founding Director of the Center for the Study of Institutional Diversity at Arizona State University and shuttled between Indiana and Arizona as needed to get the new institute off the ground.

Her groundbreaking research was supported by the Andrew Mellon Foundation, National Science Foundation, the Hynde and Harry Bradley Foundation, the Ford Foundation, the MacArthur Foundation, U.S.A.I.D., the U.S. Department of Justice, the U.S. Geological Survey, and the National Institute of Mental Health. Ostrom received the Frank E. Seidman Distinguished Award for her work in Political Economy in 1998. She won the John J. Carty Award from the National Academy of Sciences in 2004. She was the first woman to receive the William H. Riker Prize in political science. She was also awarded the Tisch Civic Engagement Research Prize from the Jonathan M. Tisch College of Citizenship and Public Service at Tufts University. The Utne Reader magazine named her one of the "25 Visionaries Who Are Changing Your World". She was also named as one of "100 Most Influential People in the World" in 2012 by Time Magazine.

Ostrom became the first woman to receive the Nobel Memorial Prize in Economic Sciences in 2009. The Royal Swedish Academy of Sciences cited that Ostrom's work teaches the people novel lessons regarding the deep mechanisms which sustain cooperation in human communities.

Even after getting diagnosed with pancreatic cancer in October 2011, she continued writing and giving lectures. After her death on 12th June 2012, she donated her share of the $1.4 million Nobel award money to the Workshop. She remained devoted to her students, colleagues, and staff. Elinor Ostrom was a profoundly intellectual scholar, a great teacher and dedicated mentor, an energetic presence in any conversation, and a warm and generous person. Her successful and revered professional and personal virtues result from the seamless and authentic way of studying, her energetic and innovative presence in the study fields, her warm and generous personality, and her tireless intellectual pursuits. She will be an inspiration not only to the new-age women economists but also to all the women in the world who would thrive

to achieve their life-long goal of pursuing their passion!

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Article By

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"Tree farts' make up about a fifth of greenhouse gases from ghost forests"

If a tree farts in the forest, does it make a sound? No. But it does add a smidge of carbon dioxide and other greenhouse gases into the air. A team of ecologists measured these gases, or "tree farts," released by dead trees in ghost forests. These spooky woodlands form when rising sea levels drown a forest, leaving behind a marsh full of skeletal dead trees. The new data suggest these trees generate about one-fifth of the greenhouse gases from ghost forests. Over long periods, ghost forests could actually help draw carbon out of the air. The reason: Wetlands can store a lot of carbon in their soils. It takes a while for carbon to build up in wetlands. In the meantime, dead trees in ghost forests give off greenhouse gases as they decay. That's why in the short term, ghost forests can pose an important source of carbon emissions. Researchers used tools that sniffed for tree farts in five ghost forests. These forests line the coast of the Albemarle-Pamlico Peninsula in North Carolina. In 2018 and 2019, researcher trekked through ghost forest with a portable gas analyzer on their back. It measured greenhouse gases wafting off trees and soils. Their measurements revealed how ghost forests pass gas into the atmosphere. Soils gave off most of the gases. Each square meter of ground (about 10.8 square feet) gave off an average 416 milligrams (0.014 ounce) of carbon dioxide per hour. The same area gave off smaller amounts of other greenhouse gases. For instance, each square meter of soil expelled an average 5.9 milligrams (0.0002 ounce) of methane and 0.1 milligram of nitrous oxide per hour.

Reference:

https://www.sciencenews.org/article/ghost-forest-tree-farts-emissions-greenhouse-gases

Article By

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"Dengue"

Introduction-

Dengue is a mosquito-borne viral disease that has rapidly spread to all regions of WHO in recent years. Dengue virus is transmitted by female mosquitoes mainly of the species Aedes aegypti and, to a lesser extent, Ae. albopictus. These mosquitoes are also vectors of chikungunya, yellow fever and Zika viruses. Dengue is widespread throughout the tropics, with local variations in risk influenced by climate parameters as well as social and environmental factors.

Dengue causes a wide spectrum of disease. This can range from subclinical disease (people may not know they are even infected) to severe flu-like symptoms in those infected. Although less common, some people develop severe dengue, which can be any number of complications associated with severe bleeding, organ impairment and/or plasma leakage. Severe dengue has a higher risk of death when not managed appropriately. Severe dengue was first recognized in the 1950s during dengue epidemics in the Philippines and Thailand. Today, severe dengue affects most Asian and Latin American countries and has become a leading cause of hospitalization and death among children and adults in these regions.

Dengue is caused by a virus of the Flaviviridae family and there are four distinct, but closely related, serotypes of the virus that cause dengue (DENV-1, DENV-2, DENV-3 and DENV-4). Recovery from infection is believed to provide lifelong immunity against that serotype. However, cross-immunity to the other serotypes after recovery is only partial, and temporary. Subsequent infections (secondary infection) by other serotypes increase the risk of developing severe dengue.

Dengue has distinct epidemiological patterns, associated with the four serotypes of the virus. These can co-circulate within a region, and indeed many countries are hyper-endemic for all four serotypes. Dengue has an alarming impact on both human health and the global and national economies. DENV is frequently transported from one place to another by infected travellers; when susceptible vectors are present in these new areas, there is the potential for local transmission to be established.

Transmission:-

i) Transmission through mosquito bite

The virus is transmitted to humans through the bites of infected female mosquitoes, primarily the Aedes aegypti mosquito. Other species within the Aedes genus can also act as vectors, but their contribution is secondary to Aedes aegypti.

After feeding on an DENV-infected person, the virus replicates in the mosquito midgut, before it disseminates to secondary tissues, including the salivary glands. The time it takes from ingesting the virus to actual transmission to a new host is termed the extrinsic incubation period (EIP). The EIP takes about 8-12 days when the ambient temperature is between 25-28°C [4-6]. Variations in the extrinsic incubation period are not only influenced by ambient temperature; a number of factors such as the magnitude of daily temperature fluctuations[7, 8], virus genotype [9], and initial viral concentration [10] can also alter the time it takes for a mosquito to transmit virus. Once infectious, the mosquito is capable of transmitting virus for the rest of its life.

ii Human-to-mosquito transmission

Mosquitoes can become infected from people who are viremic with DENV. This can be someone who has a symptomatic dengue infection, someone who is yet to have a symptomatic infection (they are pre-symptomatic), but also people who show no signs of illness as well (they are asymptomatic) [11].Human-to-mosquito transmission can occur up to 2 days before someone shows symptoms of the illness [5, 11], up to 2 days after the fever has resolved [12]. Risk of mosquito infection is positively associated with high viremia and high fever in the patient; conversely, high levels of DENV-specific antibodies are associated with a decreased risk of mosquito infection (Nguyen et al. 2013 PNAS). Most people are viremic for about 4-5 days, but viremia can last as long as 12 days [13].

iii) Maternal transmission

The primary mode of transmission of DENV between humans involves mosquito vectors. There is evidence however, of the possibility of maternal transmission (from a pregnant mother to her baby). While vertical transmission rates appear low, with the risk of vertical transmission seemingly linked to the timing of the dengue infection during the pregnancy [14-17]. When a mother does have a DENV infection when she is pregnant, babies may suffer from pre-term birth, low birthweight, and fetal distress [18].

iv) Other transmission modes

Rare cases of transmission via blood products, organ donation and transfusions have been recorded. Similarly, transovarial transmission of the virus within mosquitoes have also been recorded.

Disease characteristics (signs and symptoms)

While majority of dengue cases are asymptomatic or show mild symptoms, it can manifest as a severe, flu-like illness that affects infants, young children and adults, but seldom causes death. Symptoms usually last

for 2–7 days, after an incubation period of 4–10 days after the bite from an infected mosquito [25]. The World Health Organization classifies dengue into 2 major categories: dengue (with / without warning signs) and severe dengue. The sub-classification of dengue with or without warning signs is designed to help health practitioners triage patients for hospital admission, ensuring close observation, and to minimize the risk of developing the more severe dengue [25].

i) Dengue:

Dengue should be suspected when a high fever (40°C/104°F) is accompanied by 2 of the following symptoms during the febrile phase (2-7 days):

- Severe Headache
- Pain Behind The Eyes
- Muscle and Joint Pains
- Nausea
- Vomiting
- Swollen Glands
- Rash.

ii) Severe Dengue:

A patient enters what is called the critical phase normally about 3-7 days after illness onset. During the 24-48 hours of critical phase, a small portion of patients may manifest sudden deterioration of symptoms. It is at this time, when the fever is dropping (below 38°C/100°F) in the patient, that warning signs associated with severe dengue can manifest. Severe dengue is a potentially fatal complication, due to plasma leaking, fluid accumulation, respiratory distress, severe bleeding, or organ impairment.

Warning signs that doctors should look for include:

- Severe Abdominal Pain
- Persistent Vomiting
- Rapid Breathing
- Bleeding Gums or Nose
- Fatigue
- Restlessness
- Liver Enlargement
- Blood In Vomit Or Stool.

If patients manifest these symptoms during the critical phase, close observation for the next 24–48 hours is essential so that proper medical care can be provided, to avoid complications and risk of death. Close monitoring should also continue during the convalescent phase.

Diagnostics

Several methods can be used for diagnosis of DENV infection. Depending on the time of patient presentation, the application of different diagnostic methods may be more or less appropriate. Patient samples collected during the first week of illness should be tested by both methods mentioned below:

i) Virus Isolation Methods

The virus may be isolated from the blood during the first few days of infection. Various reverse transcriptase–polymerase chain reaction (RT–PCR) methods are available and are considered the gold

standard. However, they require specialised equipment and training for staff to perform these tests.

The virus may also be detected by testing for a virus-produced protein, called NS1. There are commercially-produced rapid diagnostic tests available for this, and it takes only ~20 mins to determine the result, and the test does not require specialized laboratory techniques or equipment.

ii) Serological Methods

Serological methods, such as enzyme-linked immunosorbent assays (ELISA), may confirm the presence of a recent or past infection, with the detection of anti-dengue antibodies. IgM antibodies are detectable ~1 week after infection and remain detectable for about 3 months. The presence of IgM is indicative of a recent DENV infection. IgG antibody levels take longer to develop and remains in the body for years. The presence of IgG is indicative of a past infection.

Treatment

There is no specific treatment for dengue fever. Patients should rest, stay hydrated and seek medical advice. Depending on the clinical manifestations and other circumstances, patients may be sent home, be referred for in-hospital management, or require emergency treatment and urgent referral [25].

Supportive care such as fever reducers and pain killers can be taken to control the symptoms of muscle aches and pains, and fever.

- The best options to treat these symptoms are acetaminophen or paracetamol.
- NSAIDs (non-steroidal anti-inflammatory drugs), such as
- Ibuprofen and aspirin should be avoided. These anti-inflammatory drugs act by thinning the blood, and in a disease with risk of hemorrhage, blood thinners may exacerbate the prognosis.

For severe dengue, medical care by physicians and nurses experienced with the effects and progression of the disease can save lives – decreasing mortality rates to less than 1% in majority of the countries.

Vaccination against Dengue

The first dengue vaccine, Dengvaxia® (CYD-TDV) developed by Sanofi Pasteur was licensed in December 2015 and has now been approved by regulatory authorities in ~20 countries. In November 2017, the results of an additional analysis to retrospectively determine serostatus at the time of vaccination were released. The analysis showed that the subset of trial participants who were inferred to be seronegative at time of first vaccination had a higher risk of more severe dengue and hospitalizations from dengue compared to unvaccinated participants. As such, use of the CYD-TDV vaccine is targeted for persons living in endemic areas, 9-45 years of age, who have had

at least 1 episode of dengue virus infection in the past. Several additional dengue vaccine candidates are under evaluation.

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"Turtle Conservation Festival – At Velas"

Lepidochelys olivace is the botanical name for the olive ridley turtle. It is one of the smallest sea turtles, reaching a maximum size of 80 cm and weighing less than 50 kg. The carapace of the olive ridley is heart-shaped and olive green in colour. Males and females are the same size when they reach adulthood. Females' carapaces, on the other hand, are a little more rounded. Each flipper has one or two claws, and the olive ridley turtle has five to nine pairs of costal scutes. Olive ridley turtles achieve sexual maturity at a young age when compared to other sea turtles, at around 15 years of age. Many females lay their eggs each year, and some even do it twice. They lay 100-110 eggs in clutches that hatch in 45 to 65 days. The nesting female leaves 70-80 cm wide track tracks with uneven forelimb impressions. The Endangered Species Act safeguards olive ridley turtles. All other olive ridleys are designated as threatened, with the exception of the breeding colony on Mexico's Pacific coast.

The IUCN Red List status of the Ridley Turtle is Vulnerable, making its conservation critical. Marine turtles are on the endangered species list. NGOs and Maharashtra's wild life department have stepped in to aid with the conservation because they recognise the importance of their preservation and protection. Two of the most important locations where Olive Ridley Turtles lay their eggs have been designated as protected areas as part of this programme. As a result, the turtle conservation campaign at Velas and Anjarle has been so effective that Velas is now responsible for 40% of all egg hatching and turtles returning to the sea in the Konkan Area. During the period when the eggs begin to hatch, the Velas and Anjarle turtle festivals are two of the most important festivities.

Velas Turtle Festival

This isn't simply another animal festival, nor is it one where turtles are paraded or shown. It's a festival where

you can see baby Ridley turtles on their first critical journey. Yes, it is their first critical baby steps as they crawl towards the open sea. This is especially essential for young female turtles, as once they reach adulthood, they return to the same beach where they were born to lay their eggs, which can take up to 15 years. However, As the mother abandons the eggs on the beach to hatch, they become prey to predators such as dogs, mongoose, and even people, putting the species in jeopardy.

Organizing Velas Turtle Festival

These juvenile turtles live to return to their nesting locations because to the Sahyadri Nisarga Mitra's tremendous efforts to save the Olive Ridley Turtles, as well as the natural beauty of this community that shares India's wide coastline.

Every year, Sahyadri Nisarga Mitra organises the Velas Turtle Festival.

Newly hatched sea turtle hatchlings are released into the water during the Velas Turtle Festival. The Velas Turtle Festival is one of the year's most popular and talked-about events in and around Mumbai, with hundreds of nature enthusiasts and photographers eagerly anticipating its start. The Kaasav was founded by the Sahyadri Nisarga Mitra with the active participation of local villagers from Velas.

Olive Ridley Turtle Conservation

Over a decade, the Velas Turtle Conservation Centre, with the cooperation of local villages, has greatly aided Velas turtle conservation efforts in turtle hatching. The working module is straightforward and simple to understand. During nesting season, the people keep vigil 24 hours a day, seven days a week. A hatchery has been constructed for the secure storage of the deposited eggs. The eggs are gathered after the female turtle lays its eggs and incubated for 45-60 days. These newborn turtles make their first excursion to the sea after hatching. Festival of Turtles Every Turtle Festival, the Sahyadri Nisarga Mitra has collaborated with the communities to help save and preserve Olive Ridley turtles, which are rapidly becoming extinct. The Velas Turtle Conservation Project is a non-profit organisation dedicated to preserving the turtles of the Velas Islands.

Every year between February and April, the Velas Turtle Festival is held. Velas' locals offer to provide home-stay accommodations to the eager tourists who visit the village every year. About 15 families agreed to provide homestay for travellers arriving for this year's festival, according to the organisers. The level of warmth and hospitality shown by visitors is simply overwhelming. The residents make certain that their visitors have no troubles when they are staying in the village for the event.

Hundreds of people watch turtle hatchlings being released into the water during this two-day ceremony. Hatchlings emerge from their nests on the beach and begin creeping towards the water. Approximately 600-700 new turtles are released into the water each year. In general, 600-700 new lives are permitted to begin.

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Article By

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"Ethnomedicinal Uses"

Family: Polypodiaceae

Botanical Name: *Drynaria quercifolia* (L.) J. Sm.

Common Name: Bashing, Wanar bashing, Pankadha, Fansawarche Bandgul.

Ethnomedicinal Observations -

i) Fronds are used for poulticing against swellings.
ii) Fronds are used on anti AIDS (Used on HIV viries)
iii) Leaf extract used on ears puse.
iv) Young fronds are used as cattle fodder in some part of study area.
v) 50 gm rhizome mixed to meat curry (1/2 liter) and consume 7 to 8 days, then sever
pile will cover within a eight days .
v) The rhizome and leaves decoction is used as anthelmintic and expectorant.
vi) The whole plant juice used in low fever.

Other uses -

It is cultivated as ornamentals in gardens as epiphytes. It is also grown in pots, hanging baskets for indoor gardening.

Field observation

Common on tree trunk, found throughout the Ratnagiri District

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"Types of Computer Languages"

Just like human beings have developed their own languages to communicate which vary as per cultures and countries, computers also need a common medium of instruction to understand the operations and commands put in. Computer languages are the essence of an operating system as they help program each and every command as well as application in the computer. Coming under the discipline of computer Science, programming languages are of different types and have a diverse set of features. If you are interested in studying programming, this blog brings you the best computer languages to learn.

Types of Computer Languages List

Computer languages can be broadly classified into 3 major categories. Computer languages open an array of career opportunities.

Computer Languages

- Machine Level Languages
- Assembly Level Languages
- High Level Languages

Language types

i) Machine and assembly languages

A machine language consists of the numeric codes for the operations that a particular computer can execute directly. The codes are strings of 0s and 1s, or binary digits ("bits"), which are frequently converted both from and to hexadecimal (base 16) for human viewing and modification. Machine language instructions typically use some bits to represent operations, such as addition, and some to represent operands, or perhaps the location of the next instruction. Machine language is difficult to read and write, since it does not resemble conventional mathematical notation or human language, and its codes vary from computer to computer.

Assembly language is one level above machine language. It uses short mnemonic codes for instructions and allows the programmer to introduce names for blocks of memory that hold data. One might thus write "add pay, total" instead of "0110101100101000" for an instruction that adds two numbers.

ii) Algorithmic languages

Algorithmic languages are designed to express mathematical or symbolic computations. They can express algebraic operations in notation similar to mathematics and allow the use of subprograms that package commonly used operations for reuse. They were the first high-level languages.

iii) C language

The C programming language was developed in 1972 by Dennis Ritchie and Brian Kernighan at the AT&T Corporation for programming computer operating

systems. Its capacity to structure data and programs through the composition of smaller units is comparable to that of ALGOL. It uses a compact notation and provides the programmer with the ability to operate with the addresses of data as well as with their values. This ability is important in systems programming, and C shares with assembly language the power to exploit all the features of a computer's internal architecture. C, along with its descendant C++, remains one of the most common languages.

iv) Business-oriented languages

SQL

SQL (structured query language) is a language for specifying the organization of databases (collections of records). Databases organized with SQL are called relational, because SQL provides the ability to query a database for information that falls in a given relation. For example, a query might be "find all records with both last name Smith and city New York." Commercial database programs commonly use an SQL-like language for their queries.

v) Education-oriented languages

a. Pascal

About 1970 Niklaus Wirth of Switzerland designed Pascal to teach structured programming, which emphasized the orderly use of conditional and loop control structures without GOTO statements. Although Pascal resembled ALGOL in notation, it provided the ability to define data types with which to organize complex information, a feature beyond the capabilities of ALGOL as well as FORTRAN and COBOL. User-defined data types allowed the programmer to introduce names for complex data, which the language translator could then check for correct usage before running a program.

b. Hypertalk

Hypertalk was designed as "programming for the rest of us" by Bill Atkinson for Apple's Macintosh. Using a simple English-like syntax, Hypertalk enabled anyone to combine text, graphics, and audio quickly into "linked stacks" that could be navigated by clicking with a mouse on standard buttons supplied by the program. Hypertalk was particularly popular among educators in the 1980s and early '90s for classroom multimedia presentations.

vi) Object-oriented languages

Object-oriented languages help to manage complexity in large programs. Objects package data and the operations on them so that only the operations are publicly accessible and internal details of the data structures are hidden. This information hiding made large-scale programming easier by allowing a programmer to think about each part of the program in isolation. In addition, objects may be derived from

more general ones, "inheriting" their capabilities. Such an object hierarchy made it possible to define specialized objects without repeating all that is in the more general ones.Object-oriented programming began with the Simula language (1967), which added information hiding to ALGOL. Another influential object-oriented language was Smalltalk (1980), in which a program was a set of objects that interacted by sending messages to one another.

vii) C++

The C++ language, developed by Bjarne Stroustrup at AT&T in the mid-1980s, extended C by adding objects to it while preserving the efficiency of C programs. It has been one of the most important languages for both education and industrial programming. Large parts of many operating systems were written in C++. C++, along with Java, has become popular for developing commercial software packages that incorporate multiple interrelated applications. C++ is considered one of the fastest languages and is very close to low-level languages, thus allowing complete control over memory allocation and management. This very feature and its many other capabilities also make it one of the most difficult languages to learn and handle on a large scale.

viii) C#

C# (pronounced C sharp like the musical note) was developed by Anders Hejlsberg at Microsoft in 2000. C# has a syntax similar to that of C and C++ and is often used for developing games and applications for the Microsoft Windows operating system.

ix) Java

In the early 1990s Java was designed by Sun Microsystems, Inc., as a programming language for the World Wide Web (WWW). Although it resembled C++ in appearance, it was object-oriented. In particular, Java dispensed with lower-level features, including the ability to manipulate data addresses, a capability that is neither desirable nor useful in programs for distributed systems. In order to be portable, Java programs are translated by a Java Virtual Machine specific to each computer platform, which then executes the Java program. In addition to adding interactive capabilities to the Internet through Web "applets," Java has been widely used for programming small and portable devices, such as mobile telephones.

x) Visual Basic

Visual Basic was developed by Microsoft to extend the capabilities of BASIC by adding objects and "event-driven" programming: buttons, menus, and other elements of graphical user interfaces (GUIs). Visual Basic can also be used within other

Microsoft software to program small routines. Visual Basic was succeeded in 2002 by Visual Basic .NET, a vastly different language based on C#, a language with similarities to C++.

xi) Python

The open-source language Python was developed by Dutch programmer Guido van Rossum in 1991. It was designed as an easy-to-use language, with features such as using indentation instead of brackets to group statements. Python is also a very compact language, designed so that complex jobs can be executed with only a few statements. In the 2010s, Python became one of the most popular programming languages, along with Java and JavaScript.

World Wide Web display languages

i) HTML

The World Wide Web is a system for displaying text, graphics, and audio retrieved over the Internet on a computer monitor. Each retrieval unit is known as a Web page, and such pages frequently contain "links" that allow related pages to be retrieved. HTML (*h*yper*t*ext *m*arkup *l*a nguage) is the markup language for encoding Web pages. It was designed by Tim Berners - Lee at the CERN nuclear physics laboratory in Switzerland during the 1980s and is defined by an SGML DTD. HTML markup tags specify document elements such as headings, paragraphs, and tables. They mark up a document for display by a computer program known as a Web browser. The browser interprets the tags, displaying the headings, paragraphs, and tables in a layout that is adapted to the screen size and fonts available to it.

ii) XML

HTML does not allow one to define new text elements; that is, it is not extensible. XML (extensible markup language) is a simplified form of SGML intended for documents that are published on the Web. Like SGML, XML uses DTDs to define document types and the meanings of tags used in them. XML adopts conventions that make it easy to parse, such as that document entities are marked by both a beginning and an ending tag, such as <BEGIN>…</BEGIN>. XML provides more kinds of hypertext links than HTML, such as bidirectional links and links relative to a document subsection.

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