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THE TIMES OF INDIA

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STUDENT EDITION

WEDNESDAY, JUNE 1, 2022

TIMES nie Newspaper in Education

Women steal the show in civil services exam

Spotlight

Shruti Sharma, a student of history, has topped the civil services examination 2021, the results of which were announced by the Union Public Service Commission (UPSC) on Monday. The top three rank holders are women. Ankita Agarwal and Gamini Singla have secured the second and third rank, respectively. Sharma and Agarwal are both Delhi University graduates in history and economics, respectively, while Singla is a BTech in computer science.

A total of 685 candidates — 508 men and 177 women - have qualified and their names were recommended by UPSC for appointment to administrative, foreign, police and other central services. The top 25 candidates comprise 15 men and 10 women. PM Narendra Modi congratulated the successful candidates and had words of encouragement for those who could not clear the exam

IAS TOPPER SPEAKS

'Do not study under any kind of pressure'

The Union Public Service Commission (UPSC) result came as a big surprise to Shruti Sharma, who has bagged the top position, as she had not expected to secure the highest rank and thought that she would only be able clear the exam. "Now that I have got a chance, I am happy that I will serve the country. I made my second attempt this time as I had to give the paper in Hindi in the first attempt due to the wrong filling of the form, in which I was left behind by just one number. This time I wrote the paper in English and cleared the exam. Papa got very emotional when he came to know, I was elated to see the happiness of my parents," she said.

On the performance of girls:

Girls do not always get a supportive environment. Now parents in villages and cities have started supporting their daughters because of which girls are moving forward

TIPS: If you have decided, then only prepare for this examination, do not study under any kind of pressure. Unless you yourself are ready, you cannot do anything

Finland prepares WORLD'S FIRST NUCLEAR TOMB

If reports are to go by, Finland is building a nuclear waste disposal site deep under the tiny city of Eurajoki. Called Onkalo, which means "deep pit" in Finnish, the nuclear waste repository is all set to open in 2024. According to reports, the pit will safely store spent uranium fuel rods for the next 100,000 years. The repository is expected to hold approximately 6,500 tons of spent nuclear fuel.

It is believed to cost around 3.5 BILLION Euro

The fuel, which will be buried 1,400 ft underground, contains plutonium and other products, which experts say will remain radioactive for 1,000 of years

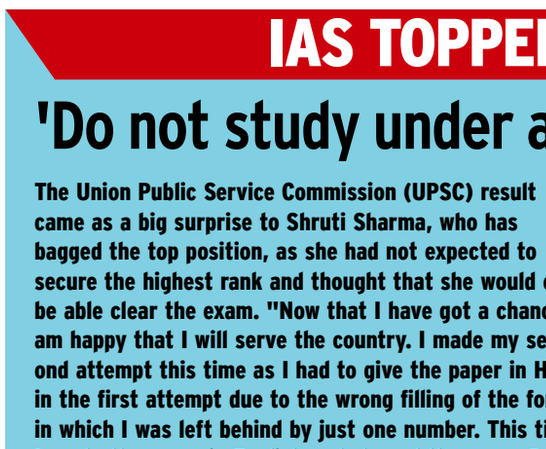
HOW IT WILL WORK

The process for storing waste will involve drilling into the underground rock. When waste arrives on site, it will first be packaged in a cast-iron vessel. Following that, a layer of inert argon gas will be introduced, then it will be closed from all sides inside a copper vessel. Though corrosion is a worry, which is caused by oxygen dissolved in the water, experts feel, by the time any water manages to make it into the sealed copper casks of nuclear waste, the dissolved oxygen will already be consumed by bacteria and other agents acting on the water

DID YOU KNOW?

The majority of nuclear fuel spent globally is stored in cooling pools or in steel casks. However, according to experts, they are not very safe. It is a well-known fact that the levels of radiation emitted from spent fuel can damage human DNA, causing death

WHAT IS MASKED AADHAAR



On May 29, 2022, the central government reversed its May 27 warning, which advised citizens to share only masked versions of their Aadhaar cards with organisations to prevent misuse. The advisory has been withdrawn by the Centre due to the risk of misinterpretation of the press release, and it has been removed with immediate effect. Users of Aadhaar cards have been cautioned to use caution when using and sharing their UIDAI Aadhaar numbers.

WHERE MASKED AADHAAR CAN BE USED

Masked Aadhaar can be used for eKYC where sharing Aadhaar Number is not necessary. It only shows the last 4 digits of your Aadhaar. Physical copies of the Aadhaar card, as well as e-Aadhaar, masked Aadhaar, and offline electronic xml provided by UIDAI (if voluntarily offered by the client) will be accepted as Officially Valid Documents for KYC purposes, according to a circular issued by UIDAI on October 23, 2018, based on the opinion of the Attorney General of India.

WHAT IS MASKED AADHAAR

According to the UIDAI website, "Mask Aadhaar option allows you to mask your Aadhaar number in your downloaded e-Aadhaar. Masked Aadhaar number implies replacing the first 8 digits of Aadhaar number with some characters like "xxxx-xxxx" while only the last 4 digits of the Aadhaar Number are visible." Only the last four digits of the 12-digit Aadhaar number are visible in the document with masked Aadhaar, hiding the first eight digits to protect the subscriber's identity. This ensures that even if the card is lost or misplaced, it cannot be used fraudulently.

'YOGA FOR HUMANITY' THEME OF 8TH EDITION OF INT'L YOGA DAY

The VIIIth edition of International Day of Yoga will be celebrated with the theme of 'Yoga for Humanity'. The event will be organised in India and across the globe on June 21. Prime Minister Narendra Modi had announced the theme in his 'Maan Ki Baat' address to the nation. This edition of International Day of Yoga will see many firsts, one of them is an innovative programme named 'Guardian Ring', which will showcase the movement of the sun, participation of people performing Yoga will take place along with the movement of the sun from different countries, beginning from east and marching towards west, the ayush ministry said in a statement.

Stockholm+50: Indian poet calls for urgent climate action in 'Portrait of a Silver Lining'

In the run up to Stockholm+50 and World Environment Day on June 5, the Council on Energy, Environment and Water (CEEW) and the Stockholm Environment Institute (SEI) on Monday released 'Portrait of a Silver Lining' — a performance poetry music video, featuring a young Indian poet, **Simar Singh**. Stockholm+50 is a global environmental meeting in June first week organised to commemorate the first-ever conference of the United Nations on Human Environment in 1972. CEEW is a think tank based in Delhi.

Singh is a 21-year-old spoken word artiste, and is known for his poems that question the status quo on issues that are usually brushed under the carpet. He is also the founder of 'UnErase Poetry', a community based out of Mumbai, for promoting and producing spoken word poetry in Hindi and English. 'Portrait of a Silver Lining' is an artistic interpretation of an SEI-CEEW report 'Stockholm+50: Unlocking a Better Future' that was released earlier this month

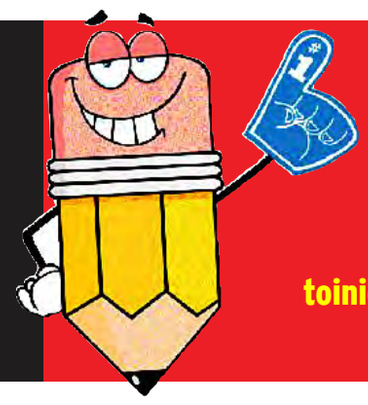
India gets its first-ever K-pop artiste Sriya Lenka

An 18-year-old girl from Rourkela, Odisha, Sriya Lenka, has made India proud by becoming the country's first K-pop star. Sriya was chosen to be one of the new group members of the K-pop group, Blackswan along with Gabriela Dalcin of Brazil. Blackswan's label DR Music made the announcement on Instagram recently. "Sriya and Gabi were finally selected as members of Blackswan after participating in the global audition programme for the last six months," DR Music said in a post.

- Lenka was selected for the band after participating in the six-month-long global auditions that were announced by DR Music last year after Hyeme left the girl group.
- Lenka, who goes by stage name Sriya, will be joining the original members of the girl group — Youngheun, Fatou, Judy and Leia — along with Gabriela Dalcin (Gabi) from Brazil as the sixth member.
- Lenka, a trained dancer, was introduced to K-pop by a friend a few years ago. She found the choreography in the music videos very attractive and got hooked onto its "unique style" of singing and dancing.
- Boy band Exo was the teenager's introduction to the world of K-pop and subsequently she fell in love with songs by the BTS, Stray Kids and The Boyz. In 2020, she saw K-pop record labels open online auditions due to the Covid-19 pandemic and decided to give it a shot.
- The Blackswan K-Pop group started in the year 2011 as Rania. It later became BP Rania before getting its current name in October 2020.

"A man who carries a cat by the tail learns something he can learn in no other way."
MARK TWAIN

Beginning the journey of learning in an alphabetical order, Times NIE takes you through one concept from each subject every week



TEACHERS, IF YOU HAVE A CONCEPT THAT CAN CHANGE A CLASSROOM, SHARE IT ON toinie175@gmail.com WITH YOUR PHOTOGRAPH

CLASSROOMS TO EXPERIENCE ZONES

GEOGRAPHY

VOLCANO

Openings of the Earth's surface

When a volcano erupts lava, ash and gas is expelled from the Earth's surface. The hole at the top is known as the **VOLCANIC CRATER.**

AN ACTIVE VOLCANO is one that has erupted within the last 10,000 years or it has some type of activity going on such as gases being released or earthquakes around it.

A DORMANT VOLCANO is one that hasn't erupted in the last 10,000 years, however there is a chance it will erupt at some point.

AN EXTINCT VOLCANO is one that hasn't erupted in the last 10,000 years and is unlikely to erupt in the future.

INTERESTING FACTS

- Volcanoes hold very hot liquid called magma
- Magma is molten rock, which glows bright orange and is held in a chamber within the volcano
- Once a volcano erupts, the magma comes out of the crater
- The expelled substance is called lava. Once the lava cools down, it solidifies to rocks

MAKE YOUR VOLCANO!

WHAT YOU'LL NEED

2 plastic cups
1 paper plate
Roll of silver foil
Glug of red food colouring
50 ml vinegar
50 ml washing up liquid
3 tablespoons bicarbonate of soda; lump of blue tack
And a parent to help out!

HOW DO YOU DO IT

- Attach the plastic cup to the plate using blue tack – you can use scissors to adjust the height of the cup, depending on how big you want your volcano to be.
- Cover the plate and cup with a sheet of foil – don't forget to make a hole above the cup for the caldera.
- Mix together roughly equal amounts of vinegar and washing up liquid, and add red food dye to give the experiment that molten lava look.
- Pour the mixture into the cup, filling it to about halfway or slightly over it.
- Pour in two or three teaspoons of bicarbonate of soda
- Stand back and watch your eruption unfold....

Tip – try adding different combinations of vinegar and baking soda to create different and bigger eruptions.

SCIENCE

VIRUS

These germs need to be inside living cells to grow and reproduce. Most viruses can't survive very long if they're not inside a living thing like a plant, animal, or person. Whatever a virus lives in is called its host. When viruses get inside people's bodies, they can spread and make people sick. Viruses cause chickenpox, measles, flu and many other diseases.

TEACHING CORONA IN INNOVATIVE WAYS

MATHS BEHIND PANDEMIC

Frank Wang, a math teacher at Oklahoma School of Science and Mathematics, began teaching kids the math of epidemics. "Where teaching about exponential growth might have them scratching their heads in the classroom, now we can show that these models are being used in hospitals to calculate things like: how many ventilators, or how many hospital beds, will they need?" For example, Wang says, "Forty million people visit Nevada. They stay a couple days and then go back home. Calculate the incubation period or mortality rate."

VIROLOGY AND BIOLOGY

Scott Johnson's class at Century High School, North Dakota, says he plans to have his students study how the coronavirus impacts the body as part of 3D learning — a scaffolding of learning that reflects real-life scientific inquiry.

JOURNALISM

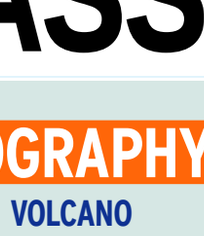
Teaching students to become storytellers — to find and tell the unique stories that exist as a result of living through the pandemic, accurately in compelling ways — is a powerful learning experience.

ACTIVITY: BECOME MAKERS OF HISTORY

When teachers ask students to journal their experience — in writing, sketches, videos, or other forms of expression — they are harnessing a powerful tool for providing an outlet for kids' feelings. At the same time, journalling allows students to create a record of their daily lives at a time when the new normal stands in stark contrast to life even just one month ago.

LANGUAGE

VARIETY

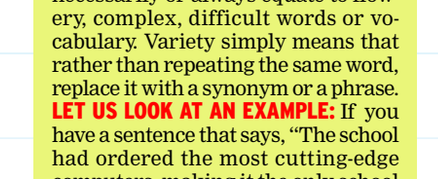


By Kartik Bajoria
Jaipur-based Communication Skills Educator & Writer

You might have heard the adage, variety is the spice of life! It most certainly is, be it clothing, holidays, friends or food. As it turns out, even in language and writing, it is good to have variety.

Having said that, variety doesn't necessarily or always equate to flowery, complex, difficult words or vocabulary. Variety simply means that rather than repeating the same word, replace it with a synonym or a phrase. **LET US LOOK AT AN EXAMPLE:** If you have a sentence that says, "The school had ordered the most cutting-edge computers, making it the only school in the entire state to have such advanced systems, a fact that the head

of the school was particularly proud of." The usage of 'school' thrice in the same sentence could definitely do with some variety, and perhaps the same sentence would read and sound better if it were to say, "The school had ordered the most cutting-edge computers, making it the only one in the entire state to have such advanced systems, a fact that the head of the institution was particularly proud of." Hence, variety adds value to writing skills and adds depth to language.



MATHS

By Sandeep Srivastava
Educator since 20 yrs, he specialises in making Maths easy and fun

VECTORS

The importance of algebra

Mathematics is the language for abstraction of real world and scientific situations, entities, relationships, and events. ALGEBRA is that branch of mathematics which showcases its abstractive power,it generalises arithmetical situations to create expressions using the four basic operations. 'M (marks for the first term)' = 20% F (first class test) + 30% P (project work) + 50% E (term exam), is a generalised arithmetical expression for calculating marks of a subject in a term.

Algebra structures any real world situation/relationships of two or more things/objects in a way that its arithmetic expression (called equation) has only one (rigid) interpretation (each equation represents one unique reality/situation/relationship).

Linear algebra – the simplest, yet most powerful algebra

The relationships expressed by algebra can be equations that could be linear, simultaneous linear equations, quadratic, cubic, and so on (we already know these). The complexity of expressing and 'solving' equations rapidly multiplies as we move from linear to quadratic to cubic, etc. Linear algebra is the mathematical world of system of linear equations – the simplest set of equations.

The world of linear algebra

Google search became very popular within years of its launch, and remains so; it uses linear algebra for ranking the pages displayed after a search. Higher competence in knowing and applying linear algebra tools is at the foundation of the ability to use 'big data' to inventively address the most diverse set of scientific, technological, social, economic (and political/governance) goals and challenges.

The importance of linear algebra

It's linear algebra that gives wings to all of us to imagine, interact and manipulate n-dimensional situations (scientific, technological, social, etc.), read each of the dimensions as being different variables that together define the situations. Ironically, linear algebra most easily takes us beyond the limits of 4-dimensional world!

Linear algebra and (artificial) intelligence

To most effectively understand and model more and more data, we often increase the number of variables while gathering the data; more intelligence demands more variables. As a result, linear algebra is becoming more powerful and useful for building increasingly intelligent devices and systems.

Mathematical world of linear algebra

The simple tools linear algebra uses are linear equations, vectors and matrices. Vector matrix is one of the most powerful concepts of linear algebra.

Welcome vectors

We know that mathematics is the language of things/situations which are quantifiable. And there are two kinds of quantifiable things – scalar (just the magnitude is enough to fully describe it), and vector (magnitude as well as direction is needed).

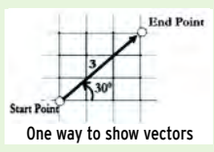
Getting a feel of vectors

A vector is what is needed to 'carry' the point A to the point B; the Latin word vector means 'carrier' (so, vector is a very common term in biology, means 'carriers of diseases', such as mosquitoes) virus.

Vectors are geometrical objects which need magnitude and direction to be comprehensively measured, understood, expressed, and used in mathematical operations. For example, if you want to know about the motion of an object, you need to consider its speed and direction. One way to handle these two ideas is to handle them separately, but using vectors, you could save time and labour by handling them as a single concept.

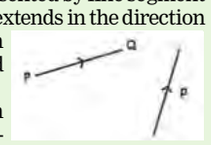
When geometrically represented, a vector is a line segment. It has a starting point and an ending point with both a fixed length and direction.

The simplest way to understand a vector is to think of it as a line on a road map. For example, in the diagram given below the vector is of length 3 units and at an angle of 30 degrees.



One way to show vectors

A vector represented by line segment PQ starts at P and extends in the direction of Q. The notation p, q, r or $\overrightarrow{PQ}$ is used for vectors.



A vector with fixed initial and terminal point is called a bound vector. When only the magnitude and direction of the vector matter, then the particular initial point is of no importance, and the vector is called a free vector. A vector with magnitude 4 and direction as positive x-axis can be any of these vectors.

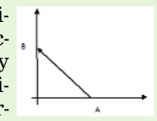
Two vectors are the same if they have the same magnitude and direction.

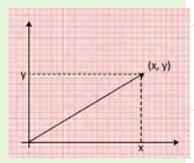
Machine learning and vectors

In machine learning software, a vector is an ordered set of data – of one or more values called scalars. Vectors are built from components, which are ordinary numbers. You can think of a vector as a list of numbers, and vector algebra as operations performed on the numbers in the list.

Vectors in Cartesian space

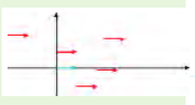
In the Cartesian coordinate system, a bound vector can be represented by identifying the coordinates of its initial and terminal point. For instance, the points A = (1, 0) and B = (0, 1) in xy-coordinate determine the bound vector pointing from the point x = 1 on the x-axis to the point y = 1 on the y-axis.





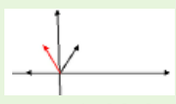
We see that the ordered pair denoted (x,y) defines any vector uniquely as <x,y>. The coordinate x is the scalar horizontal component and coordinate y is the scalar vertical component of the vector.

In the picture below, the blue vector is the position vector and all the red vectors are free vectors having the same magnitude and direction as that of the position vector.



Coordinates make algebra easy

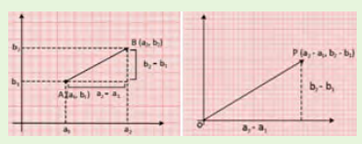
This coordinate representation of free vectors allows their algebraic features to be expressed in a convenient numerical fashion. For example, the sum of the two (free) vectors (1, 2) and (– 2, 0) (both in black) is the (free) vector (1, 2) + (–2, 0) = (1 – 2, 2 + 0) = (–1, 2) (in red).



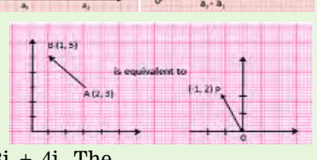
Scalar and vector

AB has horizontal scalar component as $a_2 - a_1$ & vertical scalar component as $b_2 - b_1$. Thus, joining the origin with the point with coordinates $(a_2 - a_1, b_2 - b_1)$ will give us the position vector $\overrightarrow{OP}$ equivalent to the original vector $\overrightarrow{AB}$, since & have same magnitude $\overrightarrow{OP}$ & $\overrightarrow{AB}$ direction.

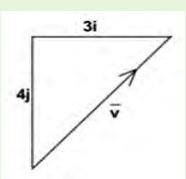
For example, let's find the vector $\overrightarrow{AB}$ if A = (2,3) & B = (1,5). We have $\overrightarrow{AB}$ = (1,5) – (2,3) = (1 – 2, 5 – 3) = (–1,2)



Vector dimensions



For example, you can write a vector **V** = 3i + 4j. The components of the vector V are 3 (in the x direction) and 4 (in the y direction). The vector is the hypotenuse of the triangle. We will continue with vectors in the next.



HISTORY

VANSHAVALI

Onkar Singh Rathore writes for Times NIE about interesting events and terms from History that students must know about. The author is interning at the History Diaries – an initiative to revamp the current pedagogical system of History through tours, drama in schools

The genealogical records of the Kings and the different aristocratic families maintained from the beginning of record-keeping to date are often called as Vanshavali.

INDIAN PURANAS are considered to be the most reliable source of genealogical records because they have genealogical lists from the beginning of time, from the first kings and their origin which is traced back to the Sun and Moon to the dynasties of Kali era i.e. Sisungas, Nandas, Mauryas, Shungas, Andhras and Guptas.

THE MAURYA DYNASTY is mentioned with detailed information in Vishnu Purana. The Matsya Purana is a reliable source for Andhra Dynasty, while one can find the explicit genealogy of the Guptas in Vayu Purana.

ROYAL INSCRIPTIONS naturally tend to exaggerate the achievements but they also provide the genealogy of the rulers which can be considered reliable.

DID YOU KNOW? The Indian Puranas are considered to be the most reliable source of genealogical records because they have genealogical lists from the beginning of time

THE CAVE 16 INSCRIPTIONS AT AJANTA devoted the first 20 verses to the donor's genealogy i.e. to the ruler Harishena. The Ghatotkacha cave inscription of Varahdeva gives a detailed genealogical record of the donor's family. The Junagarh rock inscription of King Rudradaman also has a brief genealogy of the ruler. Sometimes Prashasti also throws light on the lineage.

KALHAN'S RAJATARANGINI literally 'The River of Kings' is also one of the credible sources which covers early to 12th century history of the Kashmir region.