



THE TIMES OF INDIA

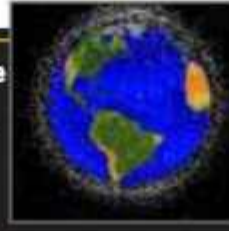
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TODAY'S EDITION

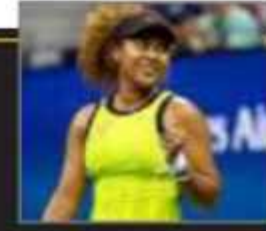
► Ever wondered how you can map your birthday? Learn about coordinates the fun way in Concepts to Classrooms **PAGE 2**



► Does man-made 'space junk' trigger climate change and cause pollution? Students debate **PAGE 3**



► US Open: Osaka advances while Tsitsipas escapes Murray **PAGE 4**



STUDENT EDITION
WEDNESDAY, SEPTEMBER 1, 2021

CORONA UPDATE

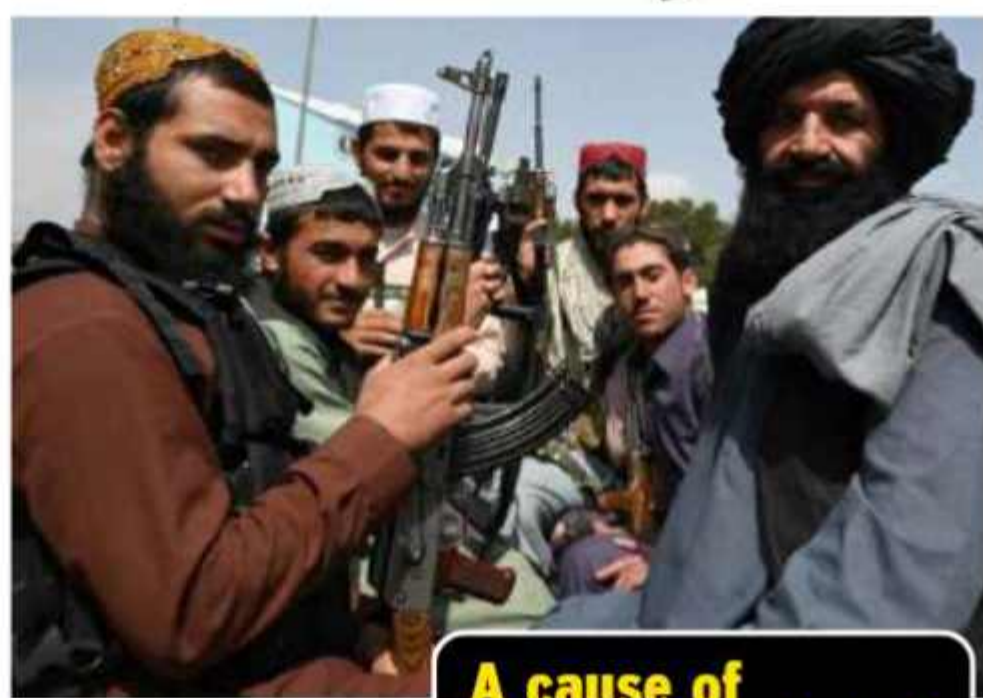
CLICK HERE: PAGE 1 AND 2

A MINUTE BEFORE DEADLINE: US TROOPS FLEE KABUL AFTER 20-YR WAR, WHILE...

Taliban stick to their guns



America's longest war ended in the dead of night in Afghanistan. The US has pulled all its troops out of Afghanistan, ending its longest war to 'cries of shame at home and celebratory gunfire from its victorious Taliban enemies in Kabul'. A giant C-17 transport laden with troops and the US ambassador flew out of Kabul airport a minute before midnight local time on August 31, the deadline set by President Joe Biden.



1 The plan to withdraw began under US president Donald Trump, who came to office in 2016, promising to end the "Forever Wars"

2 After initially increasing the troops to 16,000, with no lasting impact on the Taliban, he entered negotiations with the insurgents. However, the

and came faster than Washington expected

3 They had planned an orderly evacuation, aiming to avoid the debacle of the US withdrawal from Vietnam, famously captured in a photo of scores of Vietnamese trying to climb aboard a helicopter atop the US embassy in Saigon

A cause of concern for India?

For India, the weapons are a cause for concern, as the Taliban are known to be sympathetic to the cause of several non-state actors, especially those based in Pakistan, and given the group's close linkages with the Pakistani spy agency ISI, the possibility of these arms finding their way into terrorist hands doesn't appear too remote now

WHAT HAPPENS TO KABUL AIRPORT AFTER US FORCES LEAVE?

► The Taliban are in talks with governments like Qatar and Turkey to seek assistance to continue civilian flight operations from there, the only way for many people to leave Afghanistan

► Turkey, which is part of the NATO mission, has been responsible for the security at the airport for the past six years

► For the past two weeks, the US military has been securing and operating Kabul's Hamid Karzai International Airport with nearly 6,000 troops

► Keeping the airport open after foreign forces hand over control is vital not just for Afghanistan to stay connected to the world but also to maintain aid supplies and operations

WHAT ABOUT THE ARMS THE US LEAVES BEHIND IN AFGHANISTAN?

► Even as the US troops depart, they leave behind a treasure trove of military hardware gifted by successive US administrations— from George Bush to Joe Biden

► The White House, which didn't have the foggiest notion about "where every article of defence materials has gone", said that they were certain "a fair amount of it has fallen into the hands of the Taliban"

► While the US has spent \$86 billion on both training and providing arms and ammunition to Afghanistan, decoding the value of the military hardware still left in the country is tricky

► The Taliban now have more Black Hawk helicopters than 85 per cent of the countries in the world

Covid third wave could peak between Oct-Nov; intensity expected to be 1/4 of second wave



India may see a third wave of Covid-19 peaking between October and November, if a more virulent mutant than the existing ones emerge by September, but its intensity is expected to be much lower than the second wave, a scientist involved in the mathematical modelling of the pandemic said on Monday. Manindra Agrawal, an IIT-Kanpur scientist who is part of the three-member team of experts that have been tasked with predicting any surge in infections, said if no new virulent emerges, then the situation is unlikely to change.

► If the third wave peaks, the country may see only one lakh daily cases as against more than four lakh when the deadly second wave was at its peak in May. The second wave killed thousands and infected several lakh

► Vaccination has been the biggest weapon worldwide to combat coronavirus, and more than 63 crore doses have been administered in the country, according to the CoWIN dashboard

Deepika Padukone bags her 2nd Hollywood film, will produce it too



Actress Deepika Padukone is set to star in an upcoming cross-cultural romantic comedy to be developed by STXfilms, a division of Eros STX Global Corporation, the studio announced on Tuesday. Padukone will also produce the upcoming film through her banner Ka Productions. The project will be a "sweeping cross-cultural romantic comedy" revolving around Padukone's character.

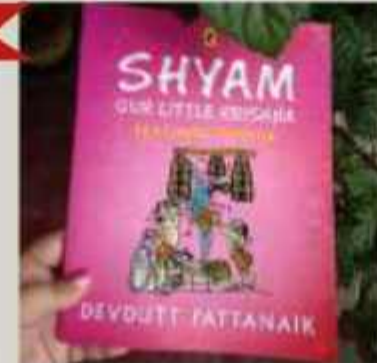
Devdutt Pattanaik comes up with new book for kids, 'Shyam, Our Little Krishna'

Mythologist Devdutt Pattanaik is back with the story of Krishna in an all-in-one story, picture and colouring book. Designed in an accessible format, this book will help parents to introduce their child to stories about Krishna and also act as an ideal engagement for bedtime reading.

► Curated with fascinating bite-sized stories, myths and trivia about the young god, the book features over 40 colourful artworks, accompanied by pages dedicated for colouring. The illustrations are by the author, and the colour rendering is done by Sasi Edavaran

► The book tells in very lucid language the story of Krishna's childhood and as he grew up, and how everybody realised that he was no ordinary boy

BOOK



HOW MUCH WILL YOU PAY FOR A BIG B JPEG?

BeyondLife.club, a venture between Rhiti Entertainment and GuardianLink.io, has said that actor Amitabh Bachchan will roll out his NFT (Non-Fungible Token) collection on the platform. This platform is set to revolutionise digital storing of creative properties like art, collectible, multi-modal collages, and other forms of digital assets for gaming and trading.



► An NFT is a unit of data stored on a digital ledger, called a blockchain that certifies a digital asset to be unique and therefore, not interchangeable

► NFTs can be used to represent items such as photos, videos, audio, and other types of digital files

► It allows uploading, minting, publishing, price protection and even auctioning to create value for the owner

All aboard falcon: Ants, avocados and a robotic arm

On Sunday, SpaceX sent a shipment of ants, avocados and a robotic arm to the International Space Station on a Falcon rocket. This was the company's 23rd delivery for NASA in the last 10 years. The recycled rocket took off from the Kennedy Space Center. The Dragon capsule booster landed successfully on SpaceX's newest ocean platform called 'A Shortfall of Gravitas'.

1 The shipment includes more than 4,800 pounds of supplies for the astronauts, including avocados, lemons, ice cream. The Girl Scouts are sending ants, shrimp and plants for the 7 astronauts to do experiments

2 The robotic arm, manufactured by a Japanese start-up, will be used to perform mundane chores around the Station in a one of its kind experiment. Future models of the arm will try to do repair jobs in the vacuum of space soon, and hopefully, work on building a base for humans on the Moon



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COLLECTOR'S EDITION

September 1, 2021

The celebration starts early on our website from Monday, August 30



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



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CLASSROOMS TO EXPERIENCE ZONES

BIOLOGY

MITOSIS

Mitosis is a process where a single cell divides into two identical daughter cells (cell division). During mitosis one cell divides once to form two identical cells. The major purpose of mitosis is for growth and to replace worn out cells. If not corrected in time, error during mitosis can result in changes in the DNA that can potentially lead to genetic disorders.



Mitosis is divided into five phases:

1. Interphase

The DNA in the cell is copied in preparation for cell division, this results in two identical full sets of chromosomes.

2. Prophase

The chromosomes condense into X-shaped structures that can be easily seen under a microscope. Each chromosome comprises two sister chromatids, containing identical genetic information. The chromosomes pair up so that both copies of chromosome 1

are together, both copies of chromosome 2 are together. Then, the membrane around the nucleus in the cell dissolves away releasing the chromosomes.

3. Metaphase

The chromosomes line up end-to-end along the centre of the cell. The centrioles are now at opposite poles of the cell with the mitotic spindle fibres. The mitotic spindle fibres attach to each of the sister chromatids.

4. Anaphase

The sister chromatids are then pulled apart by the mitotic spindle, which pulls one chromatid to one pole and the other chromatid to the opposite pole.

5. Telophase

At each pole, a set of chromosomes gather together. A membrane forms around each set to create two new nuclei. The single cell then pinches in the middle to form two daughter cells each containing a full set of chromosomes. This process is known as cytokinesis.

Onion Root Tip Activity

WHY SHOULD YOU OBSERVE AN ONION ROOT TIP UNDER A MICROSCOPE?

It is because of the meristematic cells that are situated in the tip of the roots that render the best material to study mitosis. Onion is a monocot plant. Monocotyledonous plants possess large chromosomes that are clearly visible.

LEARNING OUTCOME

WHY IS MITOSIS ALSO REFERRED TO AS THE EQUATIONAL DIVISION?

It is because the chromosome number present in the daughter cells is the same as the number of chromosomes present in the parent cell.

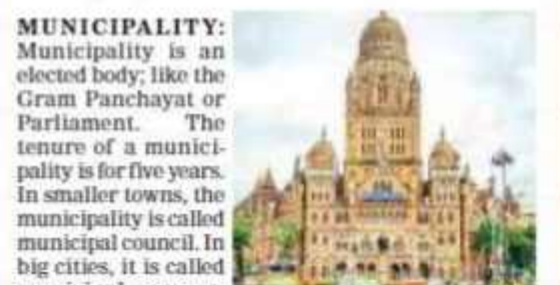


CIVICS

MUNICIPALITY



A municipality is usually a single administrative division having corporate status and powers of self-government or jurisdiction as granted by national and regional laws to which it is subordinate. **URBAN ADMINISTRATION:** A city is much bigger than a village. A city has larger population and greater number of public facilities. All of these need to be managed properly to ensure a smooth life for the people. The civic amenities in a city are provided by the municipality.



MUNICIPALITY: Municipality is an elected body; like the Gram Panchayat or Parliament. The tenure of a municipality is for five years. In smaller towns, the municipality is called municipal council. In big cities, it is called municipal corporation, e.g. Municipal Corporation of Delhi and Brihanmumbai Municipal Corporation.



WARDS: Each municipality is divided into smaller units called wards.

WARD COUNCILLOR: People from each ward elect a councillor. He is known as ward councillor. The ward councillors then elect the Chairman from among themselves.



WHY DO WE HAVE MUNICIPALITIES? The Twelfth Schedule of the Constitution lists the various functions of municipalities. Planning for economic and social development. Roads and bridges. Water supply for domestic, industrial and commercial purposes.

TEACHER PROMPT
Take students on a visit to a local municipal corporation and introduce them to officials and their roles: Turn the classroom into a township game; Let some students play the role of municipal officials. Designate others to play garden keepers, waste segregation enablers. Create an emergency situation like a flood and make students do a role play of damage control.

LANGUAGE

LANGUAGE

By Kartik Bajorla
Jaipur-based
Communication Skills
Educator & Writer



A motif, a very interesting and powerful tool in the hands of any creative writer, is a visual, a sound or any recurring symbol that features in the writing intermittently, aiding in a big way in developing a theme. This may be a theme for the entire story, a categoric feeling for one specific character; the possibilities are endless and great fun to explore. There are countless examples of Motifs being used rather effectively that come to mind.

A classic motif is in the play 'Macbeth' wherein Lady Macbeth is confronted with recurrent dreams of bloodied hands, creating a very striking and stark manifestation of her murderous guilt. In more recent times, a film such as 'Pursuit of Happiness' has a struggling Will Smith's character constantly trying to solve a Rubik's Cube, to no avail - forming the perfect metaphor for his dishevelled life. At the end of the story, when he FINALLY succeeds in his efforts, he solves the famous puzzle, forming the triumphant resolution of the motif and of his character-arc.

Similarly, in a story such as that of the film 'Weather Man', a dissatisfied, disorganised, and disoriented Nicholas Cage's character goes to an Archery Range regularly; only to fail rather miserably missing the target by woeful margins each time. At the end however, as he gets his life back on track, there is a worthy pay-off as he is able to literally and figuratively strike bull's eye at the archery range, succeeding against the odds, victorious, jubilant.



MATHS

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



MATTER

Numbers are made of numbers, and parts of numbers are numbers. However, each number is made of unique set of numbers, called its factors; every number is, in a way, a factor of another number. Expectedly, numbers are connected to each other by factors.

WHAT ARE FACTORS?

In daily parlance, factor refers to things which affect, or are part of, something else. In math too, 'factors' refer to 'the parts of a number'. Factors of a number are 'the numbers which can be used to make that number or numbers that are a part of that number'. Factors are smaller or equal to the number. 1 is actually a factor of all the numbers!

USING MULTIPLICATION TO FIND FACTORS

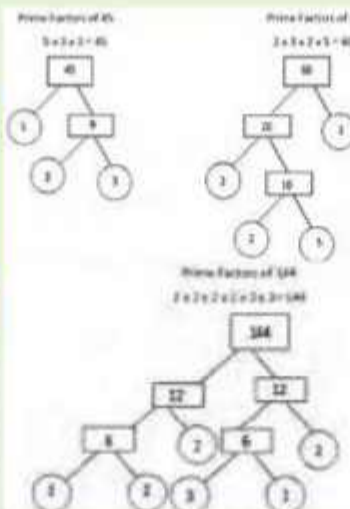
Let's see the 'parts' of 20 using multiplication:
 $2 \times 10 = 20$
2 and 10 are parts of 20 such that 2 parts of 10 each makes 20, vice versa
 $4 \times 5 = 20$
4 and 5 are parts of 20 such that 4 parts of 5 each makes 20, vice versa
 $20 \times 1 = 20$
1 and 20 are parts of 20 such that 20 parts of 1 each makes 20, vice versa
10 and 20.

NUMBER CONSTRUCTION

Prime numbers make the remaining non-prime numbers. The non-prime numbers are composed of prime numbers, and are hence called 'composite' numbers.

PRIME FACTORISATION

All numbers can be expressed as products of prime numbers. Here are a few examples:
Note: The composite factors in the rectangular box and the prime factors in the circular box.



COMMON FACTORS - HIGHEST AND LOWEST AMONG THEM

Prime factorisation is used for finding common factors of a set of numbers (12, 18, and 48). 6 is the highest common factor in 18, 30, and 48. The lowest common factor (LCF) among any set of numbers is 1?

WHAT IS THE IMPORTANCE OF COMMON FACTORS?

The common factors of a set of numbers partition/divide the set, without leaving remainder.

$30 = 2 \times 3 \times 5$
 $100 = 2 \times 2 \times 5 \times 5$
 $300 = 2 \times 2 \times 3 \times 5 \times 5$
The biggest common factor is '2 x 5' (2 and 5 are the common factors)

common factors. For finding HCF prime, factorisation of the set of numbers and find longest chain of common factor:

IMPORTANCE OF HCF

The largest common unit of partitioning of a given set of quantities (numbers) is HCF. The set of numbers of which a number is a factor called multiple of the factor and make the multiplication table of the factor. There are infinite factors.

UNDERSTANDING MULTIPLES

Multiples are part of multiplication tables of a number. Multiples of a number are bigger than, or equal to, the number.

FINDING COMMON MULTIPLES OF NUMBERS

Write the multiples of the set of numbers and find the first common ones. 24 is the LCM of 6 and 8 because 24 is the smallest number divisible by both 6 and 8.

FIND THE LCM OF GIVEN SET OF NUMBERS

$6 = 2 \times 3$
 $10 = 2 \times 5$
 $15 = 3 \times 5$
Thus, the LCM of 6, 10 and 15 is $2 \times 3 \times 5 = 30$

RELATIONSHIP BETWEEN HCF AND LCM (OF A GIVEN SET OF NUMBERS)

As factors and multiples are closely related, HCF and LCM have a definite relationship.
 $HCF \times LCM = \text{Number 1} \times \text{Number 2}$

ROOTS OF NUMBERS - A SPECIAL KIND OF FACTORS

Roots are special kind of factors of numbers. It is that part (factor) of numbers that can 'grow the number' by itself. A root of a number is such a number which when multiplied by itself gives us the number. Recall, all factors of a number can generate the number but it's not straight forwards; for example, 2 and 5 are roots of 10.

2 is a root of 4 as $2 \times 2 = 4$
2 is a root of 8 as $2 \times 2 \times 2 = 8$
5 is a root of 125 as $5 \times 5 \times 5 = 125$
5 is a root of 125 as $5 \times 5 \times 5 = 125$
 625 as $5 \times 5 \times 5 \times 5 \times 5 = 625$

but the ways of getting 10 from 2 and 5 are not the same; e.g., Obviously, 2 is not the same kind of root of 4 and 8, and 5 is not the same kind of root of 25, 125, and 625.

WHY FIND ROOT OF NUMBERS?

These have special significance, for example, the length of side of a square is the square root of its area. We have square root for compound numbers such as matrices.

If matrix $B = \text{matrix } A \times \text{matrix } A$
Then matrix A is the square root of matrix B

A UNIQUE PROPERTY OF ROOTS

Square roots of a positive integer are positive as well as negative, but cube roots are of the same kind; negative root for negative integers. The first root of a number is the number itself.

GEOGRAPHY

MAPPING

A map is a symbolic representation of selected characteristics of a place, usually drawn on a flat surface. Maps present information about the world in a simple, visual way. They teach about the world by showing sizes and shapes of countries, locations of features, and distances between places.



ACTIVITIES ON HOW TO READ MAPS

Mark Latitude and Longitude

Whenever you read a magazine or newspaper article, find the latitude and longitude of the location in which the focus of the article takes place. On a world map, mark the locations. See how long it takes until you have marks in most countries.

Learn From Maps

Find examples of maps when you are in a

shopping mall, amusement park, train station or another place. Critique whether or not the map is easy to use. Then make your own map of the area.

Make a Map

Look at an article in a newspaper, magazine, or online. How might information in the article be represented on a map? Create a map showing that information.



Neighbourhood Map

Create a map of your neighbourhood without key map elements, like a compass rose, labels, and a key. Then, have a family member or friend try to use the map to reach a particular destination. Talk about the ways in which the map was difficult to use.

Find Your Birthday Coordinates

Use the month for latitude and day for longitude. For example, if your birthday is November 26, your coordinates could be 11°N, 26°E. Or, you can make four sets of coordinates for your birthday, depending on whether you use north or south latitude, or

east or west longitude. Print a world map and plot your birthday coordinates. What would it be like to have a party there?
Source: National Geographic

Who created the FIRST MAP OF THE WORLD?

The Greeks are credited with putting map making on a sound mathematical footing. The earliest Greek known to have made a map of the world was Anaximander. In 6th century BC, he drew a map of the then known world, assuming that the earth was cylindrical.

