

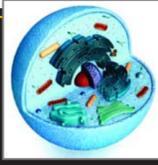


THE TIMES OF INDIA

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TODAY'S EDITION

▶ Decoded: The importance of cell division in growth, renewal and repair
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STUDENT EDITION

TUESDAY, JANUARY 5, 2021



WEB EDITION

CLICK HERE: PAGE 1 AND 2

The Pantone colours of 2021 are ultimate grey & illuminating yellow

Projects that promise to make 2021 AN EXCITING YEAR

AR IN E-COMMERCE
THE 'NEW' SHOPPING REALITY

From space travel to food, a look at six developments in the field of science and tech that promise to make 2021 an exciting year...

PLANT-BASED LAB-GROWN MEAT

IMPOSSIBLE BECOMES POSSIBLE

The Impossible Burger, a plant-based, lab-grown meat from Impossible Food Inc, is becoming popular in the US. Even chains like the McDonald's and the

Burger King are getting into the game. In India, the government has granted ₹5 crore to a few institutions to work on the lab-grown meat. This could well be the year of vegetarian meat in India. Not having to kill an animal to fill your stomach may help give you a clear conscience. However, let's remember the plant-based meat sells for almost double the price of a regular meat in several parts of the world.



Want to walk into a store, say Bata, and try out their footwear without leaving the safe confines of your home? Well, augmented reality (AR) is all set to change the game in retail. If all goes well, you can create a "look", share it with your friends and get their opinions before paying for the product. Even e-retailers are likely to bet big on AR in 2021, as it can bring a mall to a customer's home. Reliance-backed e-commerce platform Fynd is already doing it. Amazon and Flipkart could well be the next.



FOLDABLE DEVICES

MORE THAN SMARTPHONES

With Samsung, Huawei and LG already into the foldable smartphone ring, other brands are eagerly chipping in fast to try something different. So, 2021 may well be the year when foldable PCs make a mark. Lenovo's foldable PC, also the world's first that arrived in 2020, gave us a glimpse of what to expect. But it would cost a bomb—The Lenovo ThinkPad X1 Fold costs a whopping \$2,499 (roughly ₹ 1.85 lakh). According to tech gurus, foldable devices not only ensure innovations in hardware but also software technology.



SMART AUDIO GLASSES

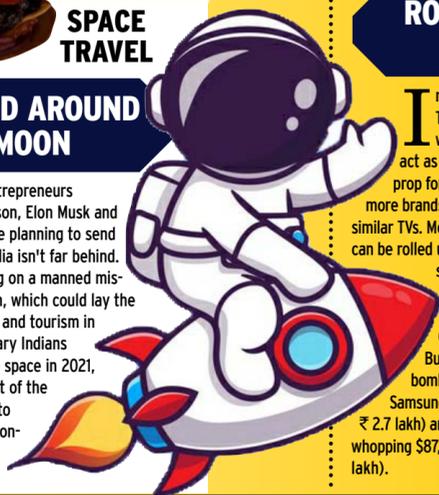
SPECTACLE TO WATCH

If 2020 was about ears, thanks to a plethora of wireless earbuds and headphones, 2021 might be about eyes. Tech giant Bose recently developed a pair of audio glasses with embedded mini speakers. Users can even make phone calls with these eye-wear. Amazon had shown smart audio glasses that can be used to make calls, listen to podcasts and set reminders, among others. Apple is also reportedly working on one for a 2021 launch. These are still baby steps in the smart audio glasses space, 2021 could see a wave of innovation.

SPACE TRAVEL

A WEEKEND AROUND THE MOON

While space entrepreneurs Richard Branson, Elon Musk and Jeff Bezos are planning to send common man to space, India isn't far behind. In fact, the ISRO is working on a manned mission to space – Gaganyaan, which could lay the foundation of space travel and tourism in the country. Though ordinary Indians might not be able to go to space in 2021, soon, it would not be out of the reach of a billionaire to realise such a million-dollar dream.



ROLLABLE, WATER-PROOF TVs

ROLL, BABY ROLL

In 2020, Samsung launched a TV called The Terrace, a water-proof TV, which can act as a pool-side companion or a prop for a rain-dance party. In 2021, more brands are likely to follow with similar TVs. Moreover, rollable TVs, which can be rolled up and tucked away, are all set to hit the markets. Recently, LG launched the world's first rollable TV. Others won't be far behind. But users might have to pay a bomb for these. The water-proof Samsung TV costs \$3,500 (roughly ₹ 2.7 lakh) and the rollable TV costs a whopping \$87,000 (an eye-popping ₹ 64 lakh).

Pantone has announced its 2021 colours of the year and the colour authority has actually selected two contrasting shades—'ultimate grey' (Pantone 17-5104) and 'illuminating yellow' (Pantone 13-0647), which it describes as "a marriage of colour conveying a message of strength and hopefulness that is both enduring and uplifting." After a tumultuous year, thanks to the global pandemic, it's a cheerful mix that reminds us of sunshine-filled days, said Pantone. Interestingly, this is only the second time in 22 years that Pantone has chosen two colours as its colours of the year.

WHY THESE COLOURS



1 "The selection of two independent colours highlight how different elements come together to express a message of strength and hopefulness, which is both enduring and uplifting, conveying the idea that it's not about one colour or one person, it's about more than one," said Leatrice Eiseman, executive director of the Pantone Colour Institute

2 "The union of an enduring 'ultimate grey' with the vibrant yellow, expresses a message of positivity supported by fortitude," Eiseman added

3 While the warming yellow shade makes us think of the better times ahead, the 'ultimate grey', which has been compared with natural elements, such as stones on the beach, bring a feeling of steadiness and resilience, he stated

ENTERTAINMENT

Warner Bros announce the return of Gal Gadot, Patty Jenkins in 'Wonder Woman 3'



Days after the release of 'Wonder Woman 1984', Warner Bros has announced that a third film based on the DC comic superhero is in works with franchise star Gal Gadot, and writer-director Patty Jenkins set to return. According to the studio, the third 'Wonder Woman' movie will conclude with the long-planned trilogy and will release theatrically.

■ The first 'Wonder Woman' film, part of the DC-Extended Universe, was released in 2017 to widespread critical acclaim and minted over \$800 million at the box office worldwide

■ The studio has not yet revealed any details about the plot of the final chapter



Ashes of Star Trek 'Scotty' actor Doohan was smuggled aboard the ISS

A private astronaut named Garriott had secretly stashed the ashes of late James Doohan aboard the International Space Station (ISS) about 12 years ago, the Times of London has reported.

Doohan famously portrayed Montgomery 'Scotty' Scott, the engineer of Star Trek's USS Enterprise

Garriott was one of the first private citizens to visit the International Space Station (ISS) in 2008 during a 12-day self-funded mission as a private astronaut



1 In an interview, Garriott told how he was contacted by the actor's son Chris Doohan, who said it was his father's wish to make it to the ISS

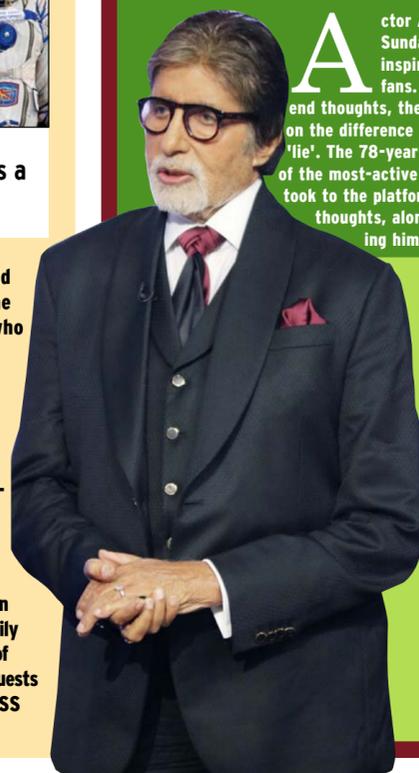
2 Garriott smuggled several laminated photos of Doohan, which contained some of his ashes, onboard the ISS. He secretly hid one of the cards behind the cladding in the floor of the station's Columbus module

3 After the Star Trek actor died in 2005 at the age of 85, his family found it hard to fulfil his wish of making it to the ISS after official requests to transport Doohan's ashes to the ISS were rejected

CELEB MANTRA

Truth never claims I am truth: Big B

Actor Amitabh Bachchan on Sunday penned down a few inspiring thoughts for his fans. Noting down his weekend thoughts, the 'Don' star emphasised on the difference between 'truth' and 'lie'. The 78-year-old legend, who is one of the most-active celebrities on Twitter, took to the platform to share his thoughts, alongside a picture featuring himself.



'Satya kabhi dawaa nahi karta hai ki mai satya hu; lekin jhooth humesha dawaa karta hai ki sirf mai hi satya hu'... Ef aM namaste(Truth never claims that I am the truth, But lie always claims that only I am the truth .. !! Ef aM Hello), tweeted Bachchan

LEARNING OBJECTIVES

- Importance of cell division in growth, renewal and repair.
- To know the terms chromatin, chromosomes and genes relate to one another.
- To understand the difference between a somatic cell and a gamete.

TWO TYPES OF CELL DIVISION

MITOSIS AND MEIOSIS

- The goal of **MITOSIS** is to produce daughter cells that are genetically identical to their mothers, with not a single chromosome more or less.
- **MEIOSIS**, on the other hand, is used for just one purpose in the human body: the production of gametes - sex cells, or sperm and eggs.



CELL DIVISION: THE BASIS OF GROWTH AND LIFE

PHASES OF MEIOSIS: MEIOSIS I AND MEIOSIS II

- Two stages are involved in meiosis, also known as reduction division.
- First part in meiosis is crossing over between homologous chromosomes, happens so that there is mixing of characteristics. The chromosomes are in pairs and then they divide hence reducing the number of chromosomes. Thus haploid cells are formed.
- Second part in meiosis is same as mitosis. Cytokinesis also takes place.
- The names are same in both type of cell division.

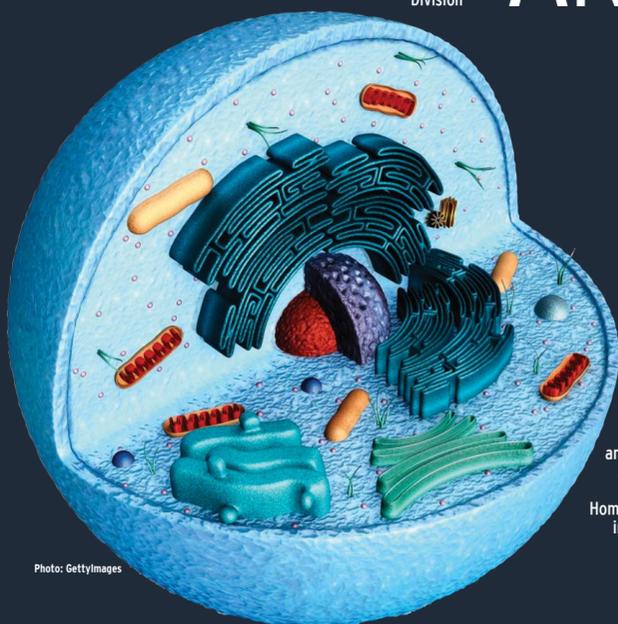


Photo: Gettyimages

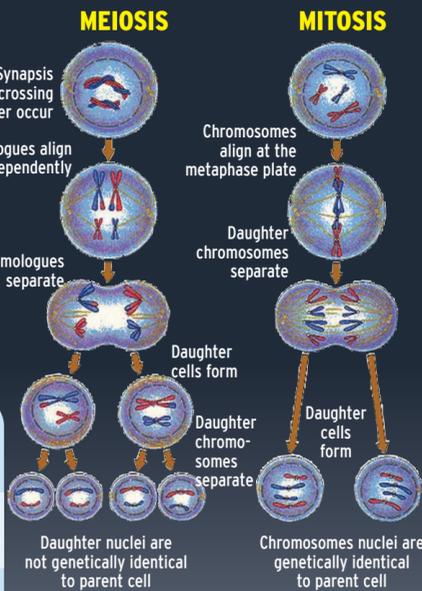
PHASES OF MITOSIS

PROPHASE	METAPHASE	ANAPHASE	TELOPHASE
Condensation of chromosomes	Nuclear membrane completely disappears	Centromeres split and sister chromatids separate	Decondensation of chromosomes starts
Chromosomes become short and thick	Chromosomes are completely visible	Pulled in opposite direction by the spindle fibers	Chromosomes become thread like thin and invisible
Chromosomes appear with sister chromatids	Chromosomes are arranged parallel to the equatorial plane	Separated sister chromatids are called daughter chromosomes	Nuclear membrane is formed around each set of chromosomes at the poles
Centrioles duplicate and move to opposite poles	Spindle fibers are formed between centromere and centrioles	Chromosomes seem like hanging bunch of bananas	Two daughter nuclei are formed. Nucleolus also appear.
Nuclear membrane and nucleolus disappear		Chromosomes reach two opposite poles	Spindle fibers completely disappear

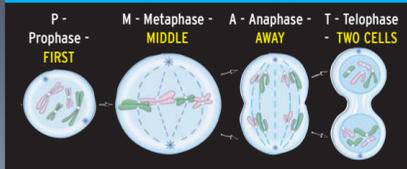
- The four stage of mitosis is known as karyokinesis which means division of nucleus
- The next step is cytoplasmic division which is called cytokinesis.
- Thus two daughter cells are formed.



Sunanda K Nair, Science teacher, St Therese Convent High School, Dombivli



ACRONYM - PMAT



QUIZ

- 1) Name the phase when paired chromatids are aligning across the centre of the cell.
 - a) prophase b) metaphase c) telophase d) anaphase
- 2) _____ only occurs in the gonads to produce gametes
 - a) mitosis b) meiosis c) both d) none

ANSWER: 1-b) metaphase 2-b) meiosis

Get Into Exam Mode

IF YOU ARE NOT WELL PREPARED, EXAMINATIONS COULD BE THE TIME WHEN THINGS GET ON YOUR NERVES. HERE ARE SOME WAYS TO KEEP YOU RELAXED..

- Start right away. Do not keep anything for the last minute
- Remember, preparation is the key to success
- Select a quiet place to study
- Declutter your study space



Rosemary Joy, Special Educator, Innovative Learning Lab, Assisi Vidyaniketan Public School, Centre for Holistic Learning and Development of Children, Ernakulam

- Choose your study time, follow the same time
- Take short breaks in between your study
- Always set a timetable to study
- Divide the syllabus portions for each day
- Note down main points for quick reference later time
- Never byheart your lesson, always understand it



- Try to connect what you learn to something you are familiar with. Teach others, then you learn better
- Reduce your screen time
- Sleep well
- Drink water to keep yourself hydrated
- Avoid junk food, eat nutritious food



- Do meditation to reduce stress and relax
- If it is comfortable, have a calm music playing softly while you study
- Keep a positive thought written on your table - words such as 'YES I CAN'
- Keep everything ready on the eve of the exam



- Reach your exam centre early on the day of exam
- Always pray and bring your mind to that moment
- Just think you are the only person in the examination hall. Let no sound or others distract your attention
- If you are going to write the exam mindfully, then whatever you learned will just flow into the paper when you write



Right planning will WORK WONDERS!

Work on the basics part first and then understand how the marks are allocated. Don't study the entire portion but learn to spot the important questions. Break your revision down into small chunks, and form a plan. Whenever you take a small break, make sure you don't stay at your study desk. Go for a short walk or just make a cup of tea.

pressure during exams. If you are feeling really worried or anxious, talk to your friend or anyone you think understands you. It will calm down the stress level and one would be able to think about practical strategies to deal with exam tension.



Begum Iqbal, Advisor, Siva Sivani High School, Murrupalem, Visakhapatnam

During exams, eat well, drink lots of water and try to be active. Exercising is one of the quickest and most effective ways to de-stress. Fresh air will clear your head and perk you up. Get at least eight hours of sleep at night. Schedule this downtime into your timetable. Parents with unrealistic expectations can often add unnecessary



Maths QUIZ

1 In an Olympic game, the flags of six nations were flown on the masts in the following way: The flag of America was to the left of Indian tricolour and to the right of the flag of France. The flag of Australia was on the right of the Indian flag but was on the left of the flag of Japan, which was to the left of the flag of China. **Find the two flags which are in the centre.**

a) India and Australia b) America and India c) Japan and Australia d) America & Australia.

2 A, B, C, D, E are five friends. A is shorter than B but taller than E. C is the tallest. D is shorter than B and taller than A. Who has two persons taller and two persons shorter than him/her?

5. (b) 32. The whole class consists of : (i) 6 students who have ranks higher than Rohan, Rohan and 25 students who have ranks lesser than him (6+1+25=32 students)

4. (a) There are no three t's so the correct answer is 0.

ANSWERS

1. a) India and Australia

2. d) South-east

3. d) South-east

4. a) India and Australia

5. (b) 32. The whole class consists of : (i) 6 students who have ranks higher than Rohan, Rohan and 25 students who have ranks lesser than him (6+1+25=32 students)

4. (a) There are no three t's so the correct answer is 0.

Sudha Venkatachari, Maths teacher, Vishwa Vidyaapeeth, Bengaluru

MY SCHOOL PROJECT ROBO WHEELS

WHAT IS IT & HOW WE WENT ABOUT WITH IT:

- Our science teacher and our robotics sir as well as our team unanimously decided to make a tyre manufacturing company driven by Robotics tech.
- We then started developing some of the vital and efficient divisions of a large robotic enabled tyre manufacturing company which we began to call "Robowheels."
- While setting up the company, we also understood the importance of every component of our Robowheels.

MAKE IN INDIA:

We wanted to prove that not just big car companies like Germany brand Mercedes can have robots working in their units, but even the units in India too can be run by robots thereby reducing manpower. This will result in maximum output by working almost 24/7 on all 365 days of the year.

MORE FACTS:

- If this technology is used in India by the tyre manufacturing industry, it will save up to 30% of their cost. Robots, instead of weary workers, can do the mundane & mechanised work.
- We want to emphasise that such robotic technology, if applied, would lead India to be one of the biggest manufacturers in this segment in global market.

SALIENT FEATURES:

THERE ARE MAINLY FOUR COMPONENTS IN OUR PROJECT:

- The tyre sorting machine: It is a battery-powered sensor-equipped sorting machine which would separate the faulty tyres from the properly functioning ones.
- The Grinder: We wanted to showcase the fate of the defective tyres through this machine which would grind the defective tyres with some rubber compounds to make adhesives out of waste.
- The security robot: We also wanted to show that for the company to be fully robot-controlled, the security should also be in the form of motion-sensored robots.
- The scissor lift: through this machine a load of components could be easily shifted from one place to the other.

Jainiel Shah, class IX, Aspee Nutan Academy, Malad West, Marve Road, Mumbai

How to Manage Your New-Year Expectations

It's finally time to leave the wreckage of 2020 behind. Except for many people, it seems as if not much will change except the year on the calendar, making the new year feel about as much of a refresh as a frozen browser. There isn't even another date you can count down to. If you're wondering how to emotionally prepare for the groundhog - day months ahead - and maybe even find some joy in the coming season - here's some advice

1. Plan small treats

If you're the kind of person who delights in creating a spreadsheet on Jan 1 to plot out the coming year, slow your roll. You can still plan small things to look forward to, said Bethany Teachman, a psychology professor at the University of Virginia. Because many of her family's usual plans for the season have been upended - like everyone else's - each person gets to choose an activity. For example: At the request of her older daughter, a fan of 'The Great British Baking Show,' the family decided to "get a ton of baking ingredients and make something really complicated that will fall apart," Teachman said. Plan "anything that is going to give you sparks of joy" as frequently as you can during the coming months, she said.



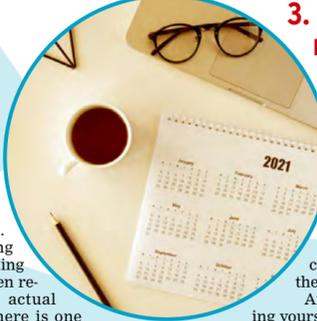
Mitch Abrams, a psychologist. Abrams often asks his patients a series of questions, like what and who is important to you? What would you want your legacy to be? And what are you willing to do to make your reality as best you can under these circumstances? And this one: "We are social beings. Circumstances sometimes make it more challenging to build, foster and nurture relationships. How can you nurture your relationship with yourself, so that you can then do the same for your relationship with others?"

Abrams said working in prisons for 21 years has taught him two things. The first is that humans are incredibly resilient and adaptable; the second is that happiness comes from within. "The more you are able to appreciate what you have, the better off you'll be," he said. "I don't necessarily mean material things. It could be your sanity, it could be your health."



2. Define what matters

With months to go until restrictions ease, the pandemic may seem like a never-ending punishment. While staying home and avoiding travel is not even remotely like actual prison time, there is one thing you can learn from inmates who adapt best to long sentences: They define (or redefine) what matters, said



3. Stay in the moment

Endurance sports psychology tells us that the body is capable of far more than the brain believes. (If someone had told you in March how long the pandemic would last, would you have thought you could handle it?) So focus on the moment, not the big picture.

Anxiety comes from casting yourself into the future, but "if you keep your energy in the present moment, and you're not contemplating how many more miles you have, it can feel

easy at times," said Jo Daniels, a senior lecturer in clinical psychology at the University of Bath, in England, and an author on a study about what causes anxiety and depression in lockdown.

How do you stay in the moment? There are all kinds of mindfulness exercises, but one is to list five things for which you're grateful, however small - yes, a hot cup of coffee counts. When you're feeling overwhelmed, think only about what you need to do to get through the next hour or the next day - not the next week or the next month.

Daniels' pandemic study found negative coping strategies - like repeatedly overeating and excess drinking - had more of an impact on people's levels of



anxiety and distress than more positive coping strategies, like seeking support. "The message is, 'Try to do the good things, but definitely don't do the bad things,'" Daniels said.

4. Take control

If you feel as if you're a hostage to the pandemic, well, that's because it does have one thing in common with actually being held

captivity. It presents a fundamentally uncertain fate, said Emma Kavanagh, a former police and military psychologist in South Wales who has taught about the psychology of hostage negotiation. Those who mentally fare best in hostage situations often work to regain some measure of control over their environment, whether it's declaring, "I will walk 100 steps around my cell today" or "I will do 50 push-ups." "Having something we can decide upon and activate can help restore that sense of control," Kavanagh said.

Decoding the mysteries surrounding famous colour-coded Indian cities

Book resolutions for 2021

Everyone resolves to read more, but having specific resolutions rather than vague ones can help one achieve their goals better. Here are some resolutions you can add to your list this new year

Read more works by people of colour

Books dominating the English market are mostly written by white people. So, try reading one by those of other races to diversify your perspective.

Read a book by a professor

Read a book by a professor on any topic of your choosing, from psychology to botany. This will

give you a better understanding of the subject.

Read a health book

Read a health book which isn't on weight loss. From managing sleep to mental health, there is a lot to health besides the weight loss.

Read a history book

From the history of a country or race, to the history of a company or family, educate

yourself on a new topic.

Read new settings

Most of what we read is set in the US, UK or India. Make a conscious effort to buy books not set there and explore new countries through pages this time.

Read an autobiography

Read an autobiography or a memoir,

basically a book where a real person explains their life.

Read more poetry

We mostly find poetry online now, which does not help many poets thrive. Buy a book and read a poem a day.

Read a graphic novel

Comics aren't always action and aren't always for kids, though if you enjoy those genres, do read those too.

Read a new children's book

Children's books now are so much more socially conscious that they're a pleasure to read.

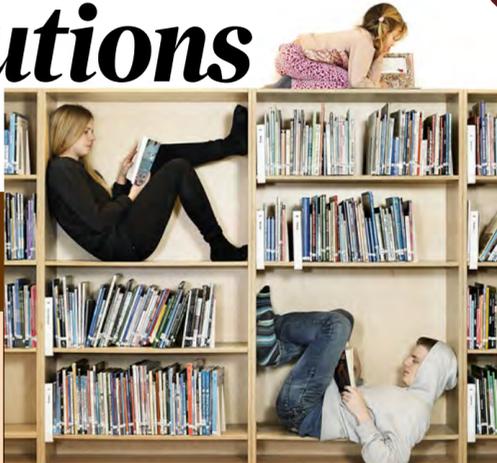


PHOTO: GETTY IMAGES

India is colourful, so colourful that even some of the cities in our country are renowned for their prominent coloured-nicknames. For example, Jaipur is also known as Pink City, Jodhpur goes by the name of Blue City while Jaisalmer is the Golden City of India. But have you ever imagined why these cities have such names?

1. JAIPUR, THE PINK CITY

Jaipur is globally renowned as the Pink City. The popular story that goes behind it is that in 1876, to welcome the Prince of Wales and Queen Victoria, the city of Jaipur was painted in terracotta pink. Jaipur during that time was ruled by Maharaja Sawai Ram Singh. Later, the ruler passed a law which said that buildings and houses in the city would be painted in pink, which is still followed. So, now you know!



JAISALMER, the Golden City

What colour do you think the Desert looks like when sun rays fall on them? Golden, brown or yellow probably! This is a phenomenon because of which the city earned the sobriquet of the Yellow City.

JODHPUR, the Blue City

As you enter Jodhpur and reach the majestic Mehrangarh Fort, which is also one of highest points in the city, you'll be welcomed by a sea of blue hued houses and architecture that simply look brilliant.



THIRUVANANTHAPURAM, the evergreen city

Almost every place in Kerala is green but it was Thiruvananthapuram that was crowned the Evergreen City by Mahatma Gandhi because of its lush green locales.



UDAIPUR, the White City

The reason behind Udaipur being the White City is that it is home to myriad stunning lakes and beautiful marble architecture. Besides, the city is also known as 'Venice of the East'.

LOOK BACK.. AND LOOK AHEAD IN OUR GIANT FESTIVE BRAINTEASER

It's a year we'd rather forget, but what do you remember about 2020? We've compiled a giant quiz of the year (we won't forget) on everything from showbiz to sporting triumphs. So get your grey matter going. And don't worry, there's no coronavirus round...

TV

- Which actress plays Beth Harmon in the Netflix smash hit, 'The Queen's Gambit'?
- Name the two lead stars of the BBC's TV adaptation of 'Normal People'.
- Nicola Roberts won the first UK The Masked Singer but what was her disguise?
- The stars of which 90s series got back after 22 years?
- Where was this year's 'I'm A Celebrity... Get Me Out of Here!' filmed?
- 'The Crown' returned for Season 4 and had the real life story of when a man broke into the Queen's bedroom. What was his name?

NEWS

- Which country was ravaged by bush fires in January?
- Hilda Clulow, the oldest Brit, died in February. How old was she?
- Name the aerospace company launched this year by billionaire entrepreneur Elon Musk.
- MacKenzie Scott became the wealthiest woman in the world after divorcing the founder of which company?
- What generation of iPhone was launched by Apple?
- Which country sent an unmanned space probe to the Moon?



QUIZ TIME (CURRENT AFFAIRS)

- Which state government had announced that if needed, for higher education, students would be given a loan up to ₹10 lakh?
A. Bihar B. Punjab C. Delhi D. Tamil Nadu
- Where was the 3rd Asian Leadership Summit held?
A. Thimphu, Bhutan B. Tokyo, Japan



- New Delhi, India D. Jakarta, Indonesia

- Spain B. Brazil C. Germany D. Canada

- Fernando Torres announced his retirement from football. He belongs to which country?



ANSWERS

- C) Delhi 2. A) Thimphu, Bhutan 3. A) Spain

KNOWLEDGE BANK (NATURE)

Vajreshwari hot springs

There are around 21 hot water springs in a five-kilometre radius of the Shree Vajreshwari Yogini Devi temple. According to tradition, the hot water is the blood of demons and giants - who were slain by the goddess Vajreshwari. Scientists say that the hot springs' proximity to the former volcano in the region accounts for their creation. Pilgrims who visit the temple also have a holy bath in the springs, called 'kundas', in Sanskrit.



THE LEADER OF THE PACK



Jasprit Bumrah, who will now be the only pace bowler remaining from the India squad of 2018-19 that won the Test series in Australia, will have his hands full going into the last two Tests of the series being the senior-most bowler despite having played just 16 Tests so far

In the fast bowling department, Bumrah as the leader of the attack, has taken more responsibility and whenever the chips are down, he has pushed himself harder. That's the sign of a champion bowler.

Sachin Tendulkar,
former India batsman

Jasprit Bumrah has played only 16 Tests but has already accounted for 76 scalps, at an average of 20.68 and an economy rate of 2.68

A MENTOR TO YOUNG PACERS

1 Bumrah's attempt to extract angles from round the wicket, like he did in the Melbourne Test and having to bowl more overs in case other junior bowlers don't do well, could push his body that endured a lower-back injury only last year. Bumrah's returns in the series have been good so far. He has picked eight wickets in two Tests, including a four-wicket haul in the first innings of the Melbourne Test that helped India dismiss the Aussies for just 191.

2 A primary reason why Bumrah has managed to keep up is because his short run-up ensures he conserves energy. His success is due to the fact that he has been accurate. He also shared tips on accuracy with debutant Mohammed Siraj while guiding him throughout his debut.

3 But Umesh Yadav's exit from the ongoing Test series due to an ankle injury after Mohammed Shami, who got injured in the first Test, and Ishant Sharma, who didn't travel to Australia, has left India with reserve options having a combined experience of just two Tests. Both Mohammed Siraj and Shardul Thakur have played a Test each while Navdeep Saini, T Natarajan, and Kartik Tyagi have no Tests under their belt. The last two Tests in Sydney and Brisbane may then test 27-year-old Bumrah's mind, maturity, as well as his body.

ADDED WORKLOAD MIGHT INJURE BUMRAH

1 Bumrah had suffered a lower back injury ahead of the three-Test home series against South Africa last year. He missed those Tests as well as the subsequent two-Test series against Bangladesh in October-November, and returned only in February for the Test matches in New Zealand. The first signs of the expected stress became evident in the last Test itself during Australia's second innings after Yadav limped off the field early.

2 Bumrah's workload increased in that innings as he had to bowl 27 overs, including some from around the wicket to left-handers and often overdid the short ball. This was the highest number of overs he has bowled in an innings since the Nottingham Test in 2018, when he sent down 29. The big worries came early on the fourth day when Bumrah left the field for a while, more than the required time for a toilet break, leading to speculation that he too was not feeling 100 per cent fit. He, however, returned to bowl and seeded fine.

3 Former India speedster Atul Wassan says coming round the wicket can put stress on any bowler. Bumrah uses them only against left-handers, which the Aussies have in large numbers. "It affects every bowler a bit because you have to move the ball further away (from the left-handers). He has to twist and then avoid that danger area in follow-through, so it calls for effort from round the stumps," says Wassan who has been state-level selector.

4 In the next two Tests, a lot will depend on how much and how well spinners Ravindra Jadeja and R Ashwin, as well as the other seamsters, bowl to take load off Bumrah.

WILL WARNER FIX AUSTRALIA'S BATTING WOES?



Opening batsman David Warner brings the X-factor to Australia and the team would love to have him play the third Test against India even if he is not 100 per cent fit, said Nathan Lyon

Wade to go back to the middle-order

■ Warner suffered a groin injury in the second ODI against India in November and could not play the first two Tests as Australia struggled with their opening batting. Ahead of the third game set to begin on Thursday in Sydney, the selectors dropped Joe Burns and brought in concussion-affected Will Pucovski and Warner.

■ Warner himself said a couple of days back that he would play even if he isn't 100 per cent, though his availability will depend on whether he is able to field in the slips without a problem.

■ Matthew Wade opened in the first two Tests, but with the return of Warner and Pucovski, Wade can now see himself being played in the middle-order as Travis Head has looked completely out of sorts.

It's 1-1 in the series. There is always gonna be pressure but there is no added pressure on myself. I know what I have to do. I go up there every time with the confidence to try and deliver as best as I can. I don't think there is any added pressure at all, it's about the team making a collective effort.

David Warner

David is the X-factor. He is a world class batter. We all know that. So we are all 100 per cent expecting David to go out there in the next couple of Test matches and do well. Obviously, he has the support of the whole Aussie change room and everyone else around the world to come out here and do well. We are looking forward to getting David back up the top order for Australia.

Nathan Lyon, Australia spinner

Lionel Messi makes 500th appearance for Barcelona in La Liga

Argentine striker Lionel Messi made his 500th appearance for Barcelona in La Liga. This was Messi's 750th appearance for the club across all competitions. The striker achieved the feat in Barcelona's La Liga clash against Huesca, Goal.com reported. Messi is only the second player, and the first born outside of Spain, to reach 500 games for Barca. Spain's Xavi holds the record for all-time appearances for Barcelona with 767 games. Xavi's total is 17 more than Messi's current tally of 750.



TEST YOUR KNOWLEDGE

Q1: Which of the following players was the top scorer of Spanish Primera División - 2017-18?

- a) Iago Aspas b) Luis Suárez
c) Cristiano Ronaldo d) Lionel Messi

Q2: Which of these cricketers have played most matches as captain in Tests, ODIs and T20Is combined?

- a) Stephen Fleming b) Ricky Ponting
c) MS Dhoni d) Graeme Smith

Q3: Who won the French Open 2020 singles title?

- a) Roger Federer b) Novak Djokovic
c) Dominic Thiem d) Rafael Nadal

Q4: Which basketball player was named NBA Offensive Leader 2018-19 post-season?

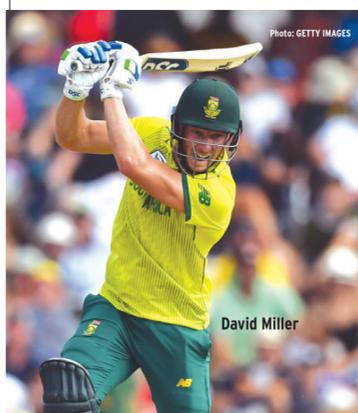
- a) Kevin Durant b) James Harden
c) Damian Lillard d) Bradley Beal

Q5: Which of the following players won women's singles title at the 2020 US Open?

- a) Victoria Azarenka b) Naomi Osaka
c) Caroline Wozniacki d) Iga Swiatek

Q6: David Miller and Sudesh Wickramasekara apart, which player holds the record for the joint-third fastest century in T20 Internationals?

- a) Faf du Plessis b) George Munsey
c) Sivakumar Periyalwar d) Rohit Sharma



David Miller

Q7: Who is the runner-up of the 2017 US Open?

- a) Alexander Zverev b) Kevin Anderson
c) Dominic Thiem d) Marin Cilic

Q8: The 2018 Wimbledon women's singles title was won by _____

- a) Sloane Stephens b) Naomi Osaka
c) Ashleigh Barty d) Angelique Kerber

Q9: Who is the youngest driver to compete in Formula 1?

- a) Jaime Alguersuari b) Lando Norris
c) Lance Stroll d) Max Verstappen

Q10: Which of the following players was the runner-up of the 2020 Australian Open?

- a) Alexander Zverev b) Kevin Anderson
c) Dominic Thiem d) Marin Cilic

Q11: Name the players who won the NBA Offensive leader 2019-20, regular season?

- a) Trae Young b) James Harden
c) Damian Lillard d) Bradley Beal

Q12: Which won the women's French Open?

- a) Ashleigh Barty b) Naomi Osaka
c) Simona Halep d) Iga Swiatek

Q13: Who won the men's Wimbledon in 2019?

- a) Roger Federer b) Novak Djokovic
c) Dominic Thiem d) Rafael Nadal

ANSWERS: 1 d) Lionel Messi 2 c) MS Dhoni 3 d) Rafael Nadal 4 a) Kevin Durant 5 b) Naomi Osaka 6 d) Rohit Sharma 7 b) Kevin Anderson 8 d) Angelique Kerber 9 d) Max Verstappen 10 c) Dominic Thiem 11 b) James Harden 12 a) Ashleigh Barty 13 b) Novak Djokovic