1. **Earth's Inner Core:** The inner core of Earth may have changed shape in the past 20 years, according to a group of scientists.

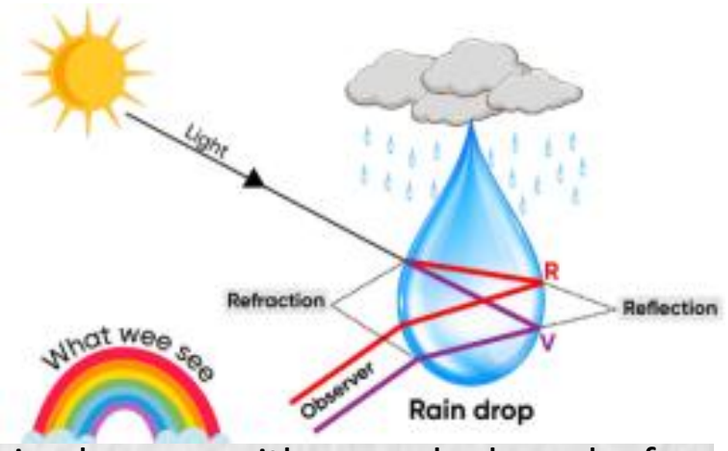


   - **About:** The Earth's inner core is the innermost layer of the planet, a solid sphere primarily composed of iron and nickel, located at the very center of the Earth, and is extremely hot with temperatures reaching around 5,200°C.
   - **Role of the Inner Core**: Produces Earth's magnetic field, protecting life from the Sun's radiation.
     - Spins independently from the outer core and the planet, and essential for sustaining life; without it, Earth could become like **Mars**, which lost its magnetic field.
   - **Connection to Earth's Magnetic Field**: Magnetic field jerks in past decades could be linked to **inner core changes**.
   - **Possible Cause of Shape Change**: Occurs where the solid inner core touches the hot, liquid outer core, driven by liquid metal flow and uneven gravity pull.
   - **Seismic Wave Analysis (1991-2023)**: Scientists analysed **earthquake shockwaves** to study core changes → found inner core slowed around 2010 before speeding up again → Evidence suggests **core deformation over time**.
   - **Long-Term Changes**: Outer core is freezing into the inner core, but full solidification will take billions of years → by then, Earth may have already been **swallowed by the Sun**.
2. **Cotton Corporation of India (CCI):** The CCI is likely to buy **100+ lakh bales** of cotton at **MSP** during the current cotton year.
   - **About CCI:** It is **Nodal Agency,** established under Ministry of Textiles, Government of India to ensure **equitable cotton distribution,** fair prices, facilitates **import-export**, and supports cotton farmers, and promotes Indian cotton globally.
     - Procures cotton at MSP to prevent farmer distress sales.
   - **About Kasturi Cotton India**: Launched in 2020 under Ministry of Textiles to promote indigenous premium cotton globally.
   - **Objective**: Traceability, certification, and branding of Indian cotton as per benchmarked standards.

- **Traceability System**: QR-based certification at each processing stage → Blockchain-based software for end-to-end traceability and transaction certificates → Microsite with QR code verification for tracking.
  - Implemented at **national level** and promoted on **national & international platforms**.
- **Fund Allocation**: **No state-level allocation**; funds managed centrally.
- **Ginner Empowerment**: Ginners across India authorized to produce Kasturi Cotton Bharat as per protocol.
- **About Ginning:** Essential step in the spinning process → Separates **seed, lint, and foreign particles** from raw cotton → Provides cleaned cotton for spinning mills.

3. **Immigration and Foreigners Bill, 2025:** The Bill is likely to be introduced by Union Home Minister in the ongoing Budget session of Parliament.
   - **About:** The Bill aims to **replace** existing laws and provide a **comprehensive legal framework** for immigration and foreign nationals.
   - **Key Provisions under the Bill**:
     - Penalty for Unauthorized Entry (₹5 lakh) & Penalty for Fake Passport (₹10 lakh)
     - Regulation of Foreign Nationals in universities, hospitals, and medical institutions.
     - Provisions for Passports & Visas for entry and exit from India.
     - Foreigners' Registration & Movement Restrictions, control over places frequented by foreigners, liability of Carriers (transporters bringing foreigners into India unlawfully).
     - **Powers of Central Government:** Removal of foreigners, delegation of powers & exemptions.
   - **Existing Laws to be replaced**:
     - **Passport (Entry into India) Act, 1920:** Required passports for persons entering India.
     - **Registration of Foreigners Act, 1939:** Required registration of foreigners in India.
     - **Foreigners Act, 1946**: Provided powers to regulate foreigners.
     - **Immigration (Carriers' Liability) Act, 2000**: Made carriers liable for bringing passengers violating passport laws.
4. **Rainbow capital of the world:** Due to frequent appearances, a University of Hawaii professor calls Hawaii the **"rainbow capital of the world."**

- **Winter Season**: Rainbows are more common during the **rainy season (October–April) in Hawaii.**
- **About formation of Rainbows:**
  - Sunlight & Raindrops: Rainbows form when raindrops refract sunlight into different colors.
  - Best Viewing Time: They appear opposite the sun and seem larger in the early morning and late afternoon.



  - Trade Winds' Role: Hawaii's trade winds bring small rain showers with enough clear sky for sunlight to create rainbows.
  - Clean Air Advantage: Unlike other places, Hawaii has fewer air particles (Dust, Pollen & Pollution), making rainbows more vivid.
- **Impact of Climate Change**: Some regions (Brazil, the Mediterranean, and Central Africa) may see fewer rainbows by 2100.
  - Places with less snow and more rain (e.g., Alaska) may see more rainbows.
  - Hawaii's leeward (dry) sides may experience fewer rainbows due to longer dry spells.

5. Exercise CYCLONE: The 3rd edition of Joint Special Forces Exercise CYCLONE commenced at Mahajan Field Firing Ranges in Rajasthan recently.

- **About:** It is a Joint Special Forces Exercise CYCLONE, conducted alternately in **India and Egypt**.
  - The previous edition of the exercise held in **Egypt** in January 2024
- **Participating Contingents:** 25 personnel from two Special Indian Forces Battalions & 25 personnel from Special Forces Group & Task Force of Egyptian Special Forces.
- **Objective & Focus Areas:** Enhance military-to-military relations through interoperability, jointness, and tactical exchange → Focus on high physical fitness, joint planning, and tactical drills → Includes **advanced Special Forces skills** and modern tactics, techniques, and procedures.
- **Benefits:** Exchange of best practices in tactical operations → Strengthens bonhomie and camaraderie between Indian and Egyptian troops.

6. **Sudan Virus Disease (SVD):** The Ugandan government and the World Health Organization recently confirmed an outbreak of Sudan virus disease.
   - **About:** Sudan virus disease is a viral hemorrhagic fever disease, belonging to the same family as Ebola virus disease, caused by Sudan virus (SUDV). It is a severe disease with high case fatality.
   - **Symptoms & Progression:**
     - **Early symptoms:** Fever, abdominal pain, anorexia, fatigue, malaise, myalgia, sore throat.
     - **Later symptoms:** Nausea, vomiting, diarrhea, variable rash, hiccups.
     - **Severe illness:** Hemorrhagic manifestations (bleeding, ecchymoses, petechiae, visceral effusions), encephalopathy, shock, multi-organ failure, spontaneous abortion in pregnant women.
     - **Recovery issues:** Arthralgia, neurocognitive dysfunction, uveitis (may lead to cataracts).
     - Persistent infection possible in immune-privileged compartments (CNS, eyes, testes).
     - **Ebola vaccines are ineffective against Sudan virus.**
   - **Transmission & Risk Factors:**
     - Person-to-person transmission via direct contact with blood, bodily fluids, organs, or contaminated surfaces.
     - Higher risk groups: Family members, healthcare providers, burial participants.
     - Risk increases with disease severity.
7. **Gender-responsive Budgeting (GRB):** The Union Budget 2025-26 has raised the gender budget to 8.8% (from 6.8% in the previous year) of the total allocation.
   - **About:** GRB is a strategy that ensures that government budgets consider the needs of all people, regardless of gender. GRB aims to promote gender equality and inclusive development.
   - **Four Priority Groups in India:** Poor, youth, farmers, and women.
   - **Female Labour Force Participation Rate (FLFPR)** rose to 42% in 2023-24 (from 33% in 2021-22).
   - Global average: 47%, but still 37 percentage points behind men's FLP of 79%.
   - **Target:** 70% women's participation by 2047 requires investment in skilling, employment, entrepreneurship, and social security.
   - **Major schemes include:** Skill India Programme, Entrepreneurship & Skill Development Programme (ESDP).

- National Skill Training Institutes, DAY-NRLM, MGNREGS, PM Employment Generation Programme.
- PM Vishwakarma, Krishonnati Yojana.
- **New schemes:** PM Dhan-Dhaanya Krishi Yojana, first-time entrepreneurs' scheme, sustainable livelihood for urban workers, Centres of Excellence for Make in India.
- **Focus on Gig Workers:** 90% of India's working women are in the informal sector.

8. **AI Diffusion Framework:** The US Framework for AI Diffusion is evaluating India solely based on its AI capabilities, ignoring the **India-U.S. strategic partnership**.
   - **About:** The framework aims to Preserve U.S. dominance in AI technology → Balance innovation and national security → Restrict AI access to adversaries like China, Russia, North Korea, and Iran.
   - **Mechanism of the Framework:**
     - The U.S. extends export controls across the entire AI technology stack: AI chips, chip-making tools, and closed AI model weights (essential for AI decision-making).
     - Three-tier country classification:
       - ✓ Tier 1 - Key U.S. allies (unrestricted AI access)
       - ✓ Tier 2- Other countries, including India (limited AI access)
       - ✓ Tier 3 - U.S. adversaries (strict AI restrictions).
     - U.S. companies can operate in Tier 2 countries but with strict conditions: Limited compute capacity & Restricted
     - **Impact:** India may diversify its tech partnerships to reduce dependence on the U.S.