A B C of GENERAL KNOWLEDGE

Class : 4, 5 & 6

Category : Junior

A B C of GENERAL KNOWLEDGE

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Revised every year since 1954

"We have made every effort to update the information in this book in a simple manner for the easy understanding by students. In this fast-moving world, a lot changes in a split second, and therefore, nothing replaces staying current and reading on a regular basis, to keep oneself updated. This is our modest efforts to cover the basics of General Knowledge, both of the world and of India."

Founder Author
Late Mr. Jiya Lal Jain
Founder and Secretary General
United Schools Organisation of India

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FOUNDER AND SECRETARY GENERAL OF UNITED SCHOOLS ORGANISATION OF INDIA LATE MR. JIYA LAL JAIN

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CHAPTER 1
Our Universe

Although there are several theories regarding the beginning of our Universe, the most popular is the Big Bang Theory. At one point of time, there was nothing in the universe – no stars, no planets, no galaxies. Everything was concentrated into a single, dense point which was called **singularity**. An instantaneous expansion of this point, around 14 billion years ago, created several sub-atomic particles. It took nearly 400,000 years for the particles to cool down enough to form atoms. Then, another 300 million years, to form planets, stars and galaxies. The expansion that began in the Big Bang continues to this day, and most scientists think, it will carry on forever, and the universe is ever expanding. Our Universe is broadly made up of:

- Stars
- Galaxies
- Black holes
- Star Systems (e.g.- Solar System)

STARS

The light from stars that we are able to see, takes time to reach us. For instance, light from the Sun, the biggest star, reaches us in minutes while the light from Alpha Centauri, the sun's nearest star neighbour, takes four years to reach the Earth. Watching the night sky, it appears that the stars are moving across the sky. However, this is due to the rotation of Earth on its own axis.

How are stars formed?

Stars are born from interstellar dust and hydrogen gas, called nebula. Nebulae (plural) contain the building blocks for stars, galaxies, and planets in the universe. Much of the gas and dust from nebula is debris from old stars that exploded when they ran out of fuel. This material takes over millions of years to be recycled to make new stars.

What are the different types of stars?

Stars are classified based on their size, temperature, colour and luminosity. All stars begin their life in the same manner, however, based on their size and mass, their life differs. The mass of the star determines how hot it is, what colour it is, and how long it will exist. Bigger stars are hot and blue; while small stars are cool and red.

How long do stars live?

Stars continue to live for billions of years. The largest stars live shorter lives, burning out after a few million years, and dying with a bang. This releases interstellar gas, which may help form new stars.

How do stars shine?

A star begins to shine when nuclear reactions in its core convert hydrogen to helium and release energy. It is then called a 'main sequence star'. When starts begin to run out

of fuel, and near the end of their lives, they stop being 'main sequence stars' and swell up to turn into red giants or shrink into white dwarfs. The brightest star emits 6 million times, more light than the sun.

What are constellations?

In the ancient days, those who observed the skies, connected stars to form patterns – related to heroes, gods and legends. These are referred to today as constellations. Not only were stories formed around these constellations, but were also used to propagate moral lessons

What is the Zodiac?

Zodiac is the elliptical path of around 8-9 degrees on either side of the elliptic. The elliptic is the sun's yearly path through the sky. It was the ancient Greeks, who divided the zodiac into 12 parts. These 12 signs form the basis of the present-day astrological horoscopes.

GALAXIES

Huge collection of stars are called galaxies. Our Universe contains several galaxies, which consist of stars, gas, and dust. Galaxies, vary in size, luminosity and mass, and are generally of three primary shapes – elliptical, spiral and irregular. Our galaxy, the Milky Way galaxy is medium sized spiral shaped and contains approximately 100 – 400 billion stars. Our solar system is in the arm of the Milky Way galaxy. Although, they looked packed with stars, galaxies are mostly empty space. The stars in the galaxy are held together by gravity and travel slowly around the galactic heart. In 4 billion years, our galaxy will collide with the Andromeda galaxy.

BLACK HOLES

A black hole is a highly dense object of such strong gravitation force that nothing passing within a certain distance can escape it, not even light. A black hole is formed when a dying star collapses. Since a black hole does not emit any light, its presence cannot be detected by any equipment. It has extremely strong gravitational pull which sucks gas and dust towards itself, forming a whirling disc around the hole.

OUR SOLAR SYSTEM

Our solar system comprises of:

- Planets
- Moons
- The Sun
- Asteroids
- Comets

Planets

There are eight planets which fall into two different categories:

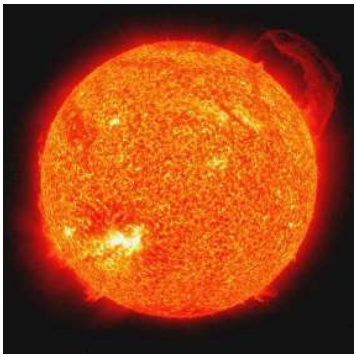
- Terrestrial Planets: Mercury, Venus, Earth and Mars - are primarily composed of silicate rocks.
- Gas Giants: Jupiter, Saturn, Uranus and Neptune are gas giants, composed primarily of frozen hydrogen and helium. They have no solid surface.

In 2006, Pluto's status was downgraded from a planet to a dwarf planet. Dwarf planets are smaller round objects that orbit the sun. Since their gravitational pull is weak, they often have debris within their orbits.

Moons

Moons are natural satellites that orbit other bodies having a gravitational pull. Moons are formed when large objects collide with planets, chipping off matter that becomes an orbiting body. Mercury and Venus are the only planets who do not have a moon orbiting them.

The Sun

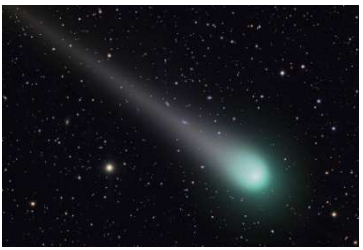


The Sun, which is the star closest to Earth, is at the centre of our solar system. The Sun is a nearly perfect sphere of hot, glowing gas and is a third-generation star, composed of recycled elements from two previous stars. It consists of 74% hydrogen; 25% helium, remaining with traces of iron, carbon, calcium and sodium. It's source of power lies buried deep in the central core, where a nuclear furnace rages nonstop, turning matter into pure heat and light. Scientists have divided the Sun's interior into three distinct layers: the core, the radiative zone, and the convective zone. All three are made solely of gas, but the gas gets hotter and denser towards the centre. In the core, the temperature soars to 15 million and the gas is 150 times denser than water. The energy output from the Sun each second is 385 million billion gigawatts. A sudden burst of energy from the Sun's surface is called a solar flare. It takes eight minutes for light from the Sun to reach Earth, but takes 100,000 years for energy released in the core to travel to its surface and emerge as light.

Asteroids

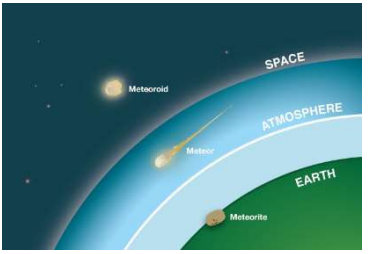
Asteroids are rocky metallic bodies that do not have an atmosphere. Asteroids orbit around the sun but are too small to be planets. The asteroid belt, located between the orbits of Mars and Jupiter, is a belt of material that orbits around the sun, containing millions of asteroids. Ceres, an asteroid recently upgraded to a dwarf planet, is found in the asteroid belt.

Comets



Comets are a form of interplanetary debris formed from fragments left from the formation of the solar system. Comets are made of rock, ice, dust, carbon dioxide, methane and other gases. As comets journey toward the sun, they begin to defrost. Solar heat vaporizes ice, which forms a halo of gas and dust around the comet's nucleus.

Meteoroids, meteors, and meteorites



Meteoroids are small chunks of rock and metal – pieces of asteroids, comets and sometimes, pieces of moon or Mars – that orbit the sun. A **meteor** is a meteoroid that burns up in the Earth's atmosphere – often called a shooting star. **Meteorites** are meteors that enter the Earth's surface and reach the ground.

Eclipse

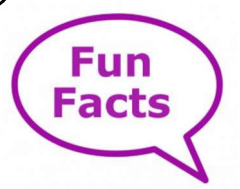
An eclipse takes place when one heavenly body such as a moon or planet moves into the shadow of another heavenly body. There are two types of eclipses:

- **Lunar Eclipse** takes place when the moon moves in an orbit around Earth, and at the same time, Earth orbits the sun. Sometimes Earth moves between the sun and the moon. When this happens, Earth blocks the sunlight that normally is reflected by the moon, and the shadow of the Earth falls on the moon. Lunar Eclipse takes place during full moon.
- **Solar Eclipse** takes place when the moon orbits Earth, and it moves between the sun and Earth. When this happens, the moon blocks the light of the sun from reaching Earth. During a solar eclipse, the moon casts a shadow onto Earth.

SPACE

Space is only 100 kms above the Earth's surface, and it takes less than ten minutes to reach in a rocket. However, it takes tremendous power to escape the pull of Earth's gravity. When the human body spends a long time in space, it changes. Without gravity pulling on the spine, the body gets 5 cms taller. Also, body fluids build up in the head, giving astronauts swollen faces and blocked noses.

A space satellite – a kind of orbiting laboratory – is where astronauts live and work. The USSR launched the first station, followed by USA. In 1973, Russia launched the Mir, which was the most successful station. In orbit since 1998, the International Space Station (built by USA, Russia along with 10 other countries) is the most used and successful space station.



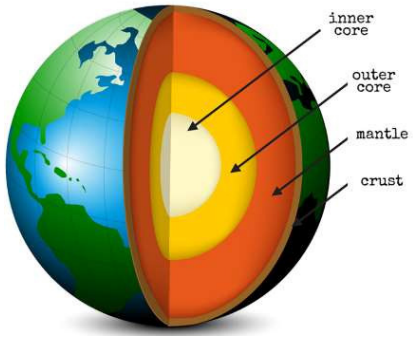
- Our solar system was formed from a stellar explosion almost five billion years ago.
- It takes the sun up to 250 million years to complete one revolution around the Milky Way galaxy.
- Distances in the universe are measured in light years. One light year is the unit of astronomical distance travelled by light in one year.
- Wormhole is an extremely new idea of modern astrophysics. These are based within the mathematical framework of Einstein's theory of relativity. A wormhole is defined as 'a short-lived portal, lasting for a brief period, joining any two black holes at different locations.' No evidence of these have been observed.
- Each second, the sun converts four million tons of matter to energy.
- Haley's comet is the most famous and brightest comet visible on earth.
- It is believed that 95% of the total mass of the universe, consists of dark matter. Dark matter is an unknown substance detected only by the gravity it exerts.
- The largest black hole weighs as much as 40 billion suns and is orbited by another smaller black hole.
- Dark energy is the expansion-generating force or substance of the universe.
- Every year, the Moon drifts 3.78 cm further away from the Earth.

CHAPTER 2
Our Planet – The Earth

The Earth was formed roughly 4.6 billion years ago, from a huge cloud of gas and dust following a gigantic star explosion. The Earth's gravity attracted debris, which became incorporated into its surface. Repeated impacts and radiation from the sun, and many internal processes caused the Earth to settle into four layers.

What are the different layers of Earth?

The Earth is divided into: an inner core, an outer core, a mantle and a crust. The inner core, is probably solid due to immense pressure and heat. The outer core is molten liquid, made of iron and nickel. Earth's mantle, is less than 2,000 miles thick. The outermost layer, Earth's crust is the thinnest layer.



How did water originate on Earth?

During Earth's formation, lighter elements (hydrogen and oxygen) became trapped inside its molten interior. These gases from the centre of the Earth travelled to the surface, creating volcanic processes that let out lava and gases. These gases, including water vapour, gave rise to Earth's early atmosphere. Water vapour condensed to liquid and fell to the surface, cooling the layer. Precipitation that resulted from this, accumulated on the surface of the Earth to form water bodies.

When did life originate on Earth?

Life appeared on Earth approximately 3.5 billion years ago. It began with the appearance of DNA (deoxyribonucleic acid), which exists in every living cell. DNA contains complex molecules of oxygen, hydrogen, carbon, nitrogen and phosphorus.

What elements are found on Earth today?

There are 117 elements that have been discovered on Earth. All these elements are displayed in a chart called the periodic table, which arranges all elements into groups based on their common physical and chemical characteristics (vertical); and basic on the atomic configuration (horizontal).

EARTH'S COMPOSITION

The Earth is composed of mainly land masses (continents), water bodies (oceans, rivers, seas) and atmosphere. The outside layer of Earth is broken up into giant pieces called tectonic plates. Over millions of years, these plates move, bump into each other, overlap and slide past each other, building new areas of ocean floor, building mountains, causing earthquakes and creating volcanoes.

Continents

With the shifting and settling of land masses on Earth over hundreds of millions of years, continents were formed. The present-day position of continents is also temporary as the Earth's plates are constantly moving. There are seven continents of different sizes: Africa, Antarctica, Asia, Europe, Australia, North America and South America. The Earth is made of rocks. Rocks fall into three categories:

- Igneous rocks are formed when magma moves up from the core of the Earth, cools and crystallizes.
- Sedimentary rocks are formed when sediments settle in lakes, oceans, sand dunes, or glacial deposits. When these sediments solidify in layers, rocks are formed.

- Metamorphic rocks are formed when igneous, sedimentary and other metamorphic rocks are subjected to heat.

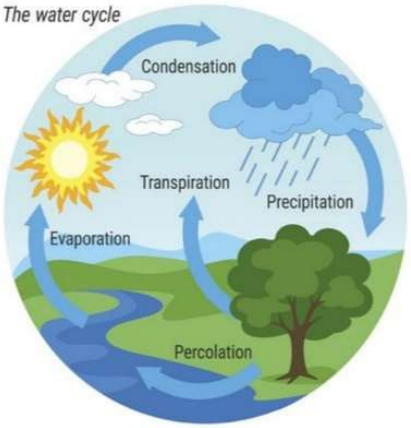
What is soil made of?

Soil is made of layers of rock material, minerals, and organic matter. Soil is classified into 12 different orders differentiated by physical, chemical, and biological characteristics.

Water bodies

Water is the only substance that is found in three forms in the Earth – solid, liquid and gas. In solid form, it is present as ice, snow, and hail. Most water is found in liquid form. Gaseous form of water is water vapour. Oceans contain 97% of the Earth's water. Of the remaining 3%, two-thirds is found as ice (in the form of glaciers, ice sheets, ice caps), and the remainder is found as underground water.

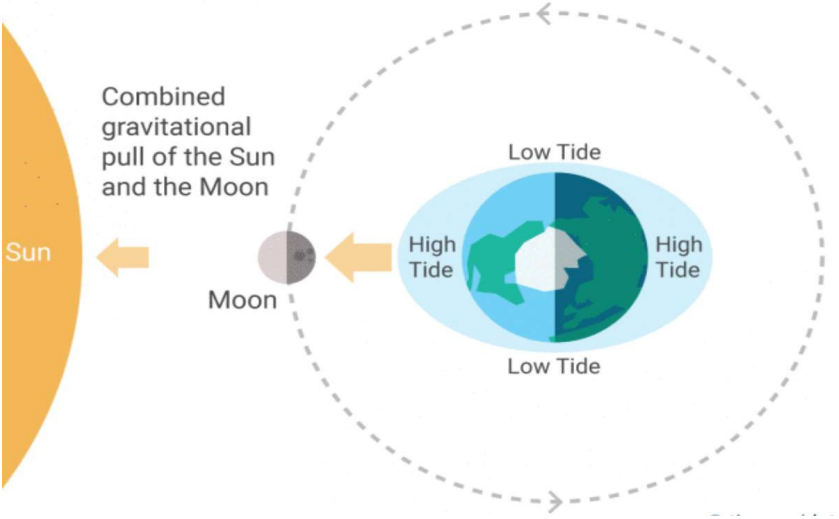
What is the water cycle?



The water cycle or hydrologic cycle is the movement of water in all its forms around Earth, circulating through the atmosphere, land and water bodies. Water enters the atmosphere through evaporation, creating water vapour. With condensation, this water vapour turns to liquid state and returns to the Earth as rain, which is called precipitation. The water that gets added to ground water is called percolation.

What are tides?

Tides are the regular rise and fall of ocean water and are caused due to the gravitational pull of the moon and the sun. Tides take place twice a day – high tide: when the water rises to its shore until it reaches its highest level; and low tide: as water recedes from the shore and reaches its lowest level.



Atmosphere

The Earth's atmosphere is an invisible layer of gases, water vapour and dust, which are all held close by the force of gravity. The atmosphere acts as a filter and protects the Earth from the sun's harmful ultraviolet radiation, while letting in solar heat, which keeps the Earth warm. The Earth's atmosphere is made up of several gases:

* Nitrogen: 78%: A gas that can be 'fixed' in the soil, as well as loose in the atmosphere. Plants need nitrogen from the soil to survive.
* Oxygen: 21% Essential for animals to breathe, oxygen was absent until microbes evolved that could use sunlight to turn carbon dioxide and water into carbohydrates, releasing oxygen.

* Argon: 0.9%: An inert gas.
* Others: 0.1%: These include carbon dioxide, which was once abundant, but is now mostly incorporated into materials such as limestone.

There are five layers of the atmosphere:

TROPOSPHERE

- The Troposphere starts at ground level extending up to 10 kms up. It is the most dense and warm layer and is also the location of cloud formation and weather origination.

STRATOSPHERE

- The Stratosphere extends from 10 to 30 kms and is the layer where most aircrafts fly. The ozone layer is present here which absorbs the sun's harmful ultraviolet radiation.

MESOPHERE

- The Mesosphere extends from 30 to 50 kms. Temperatures here fall to almost -130°C.

THERMOSPHERE

- The Thermosphere extends from 50 to 350 miles. Temperatures are extremely low.

EXOSPHERE

- The Exosphere is the outermost layer which extends directly into space. It contains hydrogen and helium.

HOW DOES EARTH'S PLATE MOVEMENT AFFECT US?

The Earth is prone to several natural phenomena due to the movement of its tectonic plates. Volcanoes, Earthquakes

and Tsunami are some of the phenomena that have an impact on our modern-day lives.

Volcanoes

Volcanoes are produced when heat and pressure build up inside the Earth. The material that is at the mantle and the lower part of the crust reach such a high temperature that it melts the rock. This melted rock is called magma. Volcanoes appear at the edges of the Earth's crustal plates, that move in relation to each other. The action between the plates determines the type of volcano. Volcanoes also erupt at spots where the interior molten rock burns through the crust. Apart from lava, poisonous gases, ash, cinders and fragments of rock come out from a volcano. This combination of volcanic products, called pyroclastic flow can cause much havoc and devastation.

Earthquakes

Earthquakes occur when vibrations are caused by the movement of rocks, along a fracture that exists in the Earth's crust. These tectonic plates, push, pull, or dive under each other, causing fault zones. Any further movement causes release of energy in the form of waves, which ripple violently through the crust, causing an earthquake. The severity (magnitude) of an earthquake was measured by the Richter scale. The worst earthquake was recorded in Chile in 1960, measuring 9.5 on the Richter scale.

Tsunami

A Tsunami occurs when the seismic waves are formed in the ocean. This may occur due to an earthquake, volcanic eruptions in or near the ocean. The worst Tsunami occurred after an earthquake measuring 9.0 on the Richter scale struck the island of Sumatra, Indonesia, in 2004.

THREATS TO PLANET EARTH

As humans, our activities such as cutting forests, polluting oceans, global warming etc, have a negative impact on our planet. One of the main threat is the garbage that is being generated by us. With growing population, we are creating tons of garbage, which goes to landfill sites. Landfill sites are huge areas where garbage is dumped, compacted and then covered with soil. This layering is done as more and more garbage is dumped on the site.

What is the greenhouse effect?

The greenhouse effect allows short-wave radiation of the sun's rays to pass through the atmosphere to the surface of the Earth, but does not permit the long-wave radiation of the sun's rays to escape. This blankets the Earth and maintains the temperature on Earth to support life, holding in light and heat.

What is the ozone layer?

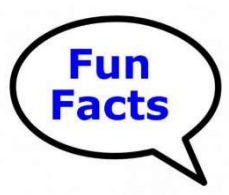
The ozone layer is a region in the Earth's stratosphere that contains high concentration of a bluish gas called ozone. This extremely important layer absorbs most the harmful ultraviolet radiation of the sun, and protects life on Earth.

What is the composition of ozone?

Ozone gas is composed of three molecules of oxygen. When ultraviolet rays fall on this layer, the oxygen molecules are split. Two of these molecules combine to form oxygen gas, and the free molecule combines with another oxygen atom to form more ozone.

What causes ozone layer depletion?

Manufactured chemicals interfere with the cycle of ozone production. Chlorofluorocarbons (CFC's), usually found in refrigerants and aerosol sprays have been banned as they have been proven to cause depletion in the ozone layer.



- Earth's inner solid core spins at a different rate from the Earth itself.
- 250 million years ago, the Earth's continents all joined together, forming a super continent called Pangaea.
- Continent comes from the Latin word 'held together'.
- Ice is lighter than water because as water freezes (32° F, 0° C) it expands to form ice. This is the reason why ice floats in a glass of water.
- Water is a universal solvent, as it can dissolve many substances, including the hardest rock.
- The 7,000 species of earthworms that live in the soil, help aerate the soil. Their castings are a major organic component.
- Atoll is formed when an undersea volcanic eruption in the warm tropics, builds a mid-ocean island.
- Northern Lights or Aurora Borealis, occurring in the Arctic area, is the colourful display of nightly lights. The same display near Antarctica is called Aurora Australis.
- Mariana Trench is the deepest part of the Pacific Ocean.
- Wind is the movement of air caused by the uneven heating of Earth by the sun.
- Iceberg is formed when large chunks of ice breaks off from a glacier, and falls into the sea. Icebergs are formed of fresh water.
- The ozone hole, over Antarctica is an area which has depleted ozone. Another smaller hole has been detected over the Arctic.

CHAPTER 3
Mapping the Earth

It is a challenge to visually represent Earth on a flat surface since it is a sphere. Only where the surface directly touches the globe, can the map be accurate. The earliest surviving maps and charts come from ancient Babylonia and Egypt (around 2300 BC). Mapping the Earth has led to the introduction of imaginary lines and time zones across the globe.

How was Earth mapped in ancient times?
Greek cartographers needed lines of reference to locate places on maps. Hence, they used grid lines – latitudes (parallels) and longitudes (meridian). This gave rise of the imaginary line, the Equator. Once maps had grid lines, it became easier for the cartographers to locate places on Earth.

What is geomagnetism?
The Earth has a magnetic field which is believed to arise from the electric currents generated by the movement of the hot liquid iron in its core. Earth magnetic field extends from the interior of the Earth to space. This phenomenon is called geomagnetism. The earliest explorers created magnetic compasses to use this phenomenon to navigate their way.

What were the instruments used for mapmaking?
Present day GPS (Global Positioning System) and other electronic equipment have replaced traditional equipment such as:

* Magnetic Compass: used to assert the direction of travel;
* Telescopes: optical instrument used to magnify a distant object;

* Astrolabe: tool to tell time and the position of the Sun and the stars;
* Sextant: used to measure the angle between two visible objects.

Ibn Battuta, an Arab historian, travelled more distance than anyone else in history. His 29 years of travel started when he was 21, in 1325. He undertook the pilgrimage to Mecca from Morocco, his birth place. He travelled roughly 75,000 miles, which is three times the distance covered by Marco Polo.

How was accuracy in maps obtained?

When Wilbur Wright took the first aerial photos, the British Expeditionary Force in Egypt experimented with using aerial photos to prepare maps. Measurements were taken directly from the photographs which substituted ground surveys. Mapping oceans was done by using sonar – sound waves from a ship are bounced off the ocean floor, and picked up on their return by a receiver on the ship.

How is mapping done presently?

With advances in science and technology, there are several resources that are presently used for mapping. Landsat – series of unmanned scientific satellites equipped with cameras – is also used to obtain greater accuracy in mapping.

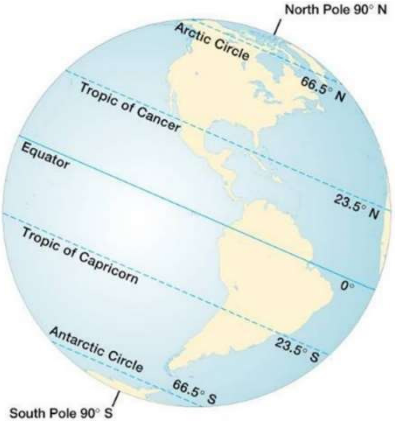
What is GPS?

Global Positioning System is a satellite based navigation and surveying tool based on the reception of signals from orbiting satellites. It was originally developed for military use. It has three components – satellites orbiting Earth, master control stations around the world, and receivers installed in various

locations. Navstar satellites orbit the Earth every 12 hours, following six different orbits. Three additional satellites orbit as backup. These satellites contain atomic clocks that send precise times with each signal to the Earth.

Earth's Imaginary Lines

Present day Earth is divided into latitudes and longitudes to aid in navigation and to pinpoint exact locations. Each place on Earth has a latitude and longitude. While the latitude runs from north to south of the Earth; the longitude runs from East to West. Both are divided into degrees. The Equator and the Tropics are the prominent imaginary lines of the Earth.



What is the Equator?

The Equator is an imaginary line that divides the Earth into two equal parts – The Northern Hemisphere and the Southern Hemisphere. The regions that are along the Equator receive the most sunlight, and therefore are the warmest areas. The equator does not pass through India, but it passes through the Indian Ocean, south of Sri Lanka.

What are the tropics?

In addition to the equator, there are two other imaginary lines that pass through the Earth, at 23.5° to North and South of the equator. The line to the North is called Tropic of Cancer, and to the South is called Tropic of Capricorn.

Earth's numerous time zones

The position of the Sun and other stars in the sky while the Earth is rotating, defines 'a day'. The Earth does not rotate at a uniform speed, so the average length of a solar day in a year come to 24 hours.

Previously, since there was little communication between areas, each city or town set their clocks by observing the position of the Sun. However, with the advancement of the transportation system, especially railroads, the need for a standardized time zone arose. Since the 1884 international agreement had set prime meridian, 0° longitude, in Greenwich, England, a global time zone was created which divided the world into 24 time zones.

What is daylight savings time?

During World War I, several countries pushed their clocks forward an hour to extend daylight. This was done as an energy savings measure, and several more countries also adapted this practice. Daylight savings time is the practice of advancing clocks during summer months so that evening daylight lasts longer, while sacrificing normal sunrise times. Today, roughly 70 countries observe daylight savings time.

What is a leap year and why do we need it?

The concept of the leap year was initiated by the Egyptians. It takes the Earth 365 ¼ days to rotate around the sun. After four years, the ¼ day adds to an extra day. This extra day is added to the month of February, which has 29 days every 4 years.

Seasons of the Earth

Seasons occur as the Earth revolves around the sun. Since the Earth is tilted on its axis, the latitude at which the sun appears directly overhead, changes as the Earth orbits the sun. A season is a division of the year, marked by changes in weather, ecology and amount of daylight.

How many seasons are there?

Typically, the Earth experiences four seasons of 3 months each:

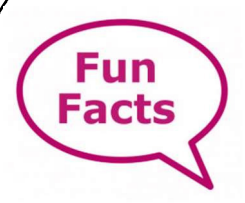
- ❖ Spring – from March 1 to May 31
- ❖ Summer – from June 1 to August 31
- ❖ Autumn – September 1 to November 30
- ❖ Winter – from December 1 to February 28 (February 29 in a leap year)

What is equinox?

Equinox is the moment when the Sun reaches its most northerly or southerly point over the Equator. At these times, due to the tilt in the Earth's axis, the rays of the Sun fall directly on the equator. Equinoxes occur twice a year, *Spring Equinox* on March 21 and *Autumn Equinox* on September 23. On these days, the periods of daylight and darkness are equal all over the world.

What is solstice?

Solstice occurs twice a year. When the sun reaches its northernmost point, it is called *Summer Solstice*, on June 21, the longest day of the year; and when the sun reaches its southernmost point, it is called *Winter Solstice*, on December 22, which is the shortest day of the year.



- Cartography is the study of making maps.
- Christopher Columbus did not venture beyond the Caribbean.
- The French were the first to conduct an official national land survey producing 182 map sheets by 1787.
- All lines of longitude converge at the North and South Poles.
- The location of the poles changes due to the uneven spinning of the Earth.
- The weight of the Antarctic ice caps deforms the shape of the Earth.
- The Tropic of Cancer passes through India in 8 states - Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, West Bengal, Tripura and Mizoram.
- Regardless of the time of the year, the northern and southern hemispheres always experience opposite seasons.

CHAPTER 4
Earth's Weather, Climate and Habitat

Although the terms weather, climate and habitat appear to mean the same, they are actually very different from each other. We are extremely lucky to be able to experience such diversity depending on which part of the world we live in.

WEATHER

Weather is caused by the sun, which heats the air at various parts of the Earth. Although weather is a result of global system of moving air and moisture, physical features such as mountain ranges or bodies of water are also critical in determining the weather of a place. Weather only occurs in the lower atmosphere. It reflects the short-term conditions of the atmosphere. The weather of a place can change from one minute to the next.

How do meteorologists predict the weather?
National weather stations have been set up that analyse data gathered from various sources. All information collected in this manner, are then analysed by super computers, which using complex algorithms forecast weather in the coming days.

What are clouds?
Clouds are condensed water vapour, and are one of the most visible marks of the weather. They can be seen in distinctive patterns and are an indication of the weather.

How are clouds formed?
When the sun shines on seas and lakes, some of the water evaporates into the warm air. This warm water vapour then rises up and away from the Earth's surface. As the air rises,

it cools. Because cold air cannot hold as much moisture as warm air, the water vapour condenses and forms clouds. The clouds that form very high in the atmosphere (16,500 ft) are made of ice crystals rather than water vapour.

What are the various types of precipitation?

Any kind of falling moisture is called precipitation. The different types are: rain, snow, sleet (mixture of snow and rain), hail (ice pellets) and fog.

How is snow formed?

When temperatures are low, moisture in the clouds get converted to tiny ice crystals. These crystals stick together forming snowflakes, which are supercooled crystals around bits of salt, sand, dust, pollutants, and other material scattered in the upper atmosphere. When these crystals become very heavy, they fall to the surface of the Earth.

What are storms?

A storm occurs when warm air collides with cold air, creating an extreme pressure difference. The cold and warm air centre around the area of low pressure. As more warm air rushes in, it causes the cold air to move towards the area of low pressure, creating whirlwinds.

What is a tornado?

Tornado is a giant vortex to violently rotating winds having the appearance of a funnel shaped cloud and advancing beneath a large storm system.

What are hurricanes?

Hurricanes are a type of storm with a violent wind, like a tropical cyclone. Hurricanes, cyclones and typhoons develop over tropical waters in summer and autumn, when ocean temperatures are warmest.

CLIMATE

Whereas weather happens on a day to day basis, climate refers to the average weather conditions over time. Trends over several years are analysed, which determines the climate of a place. Some of these are average precipitation, average temperatures, average sunlight received etc.

Global warming is the gradual heating of Earth's surface, oceans and atmosphere and is currently the most pressing issue of our time and is the result of several years of climatic changes. Global warming is caused due to an increase in the greenhouse gases, such as carbon dioxide. This has led to warmer ocean temperatures, high sea levels, increased humidity, and shrinking snow pack and ice at the Poles. This influences the weather globally.

HABITAT

Habitat is an area of natural environment in which an organism or population lives. A habitat is made up of physical factors such as soil, moisture, range of temperature and availability of light, and factors such as availability of food and presence of predators. Every living species on Earth has its own favoured habitat, which it shares with others. These different species interact with each other and with their natural environment to create an ecosystem.

What are biomes?

Life on Earth exists in a bubble called the biosphere. Extending from the ocean floor to six miles above sea level, the biosphere depends on the interaction of several large systems to process energy from the sun, the atmosphere (which provides oxygen), the hydrosphere (water in the ground and oceans) and the lithosphere (the land). This basic unit is called a biome.

Biome classifications are based on the living things that would naturally exist in an area without any human intervention. There are ten major biomes on Earth, based on climatic patterns, soil types, and animals and plants inhabiting an area. The various biomes are:

TEMPERATE FOREST

Weather: freezing winters and very hot summers.
Plant life: deciduous and evergreen trees.
Animal life: small ground-dwelling mammals, rabbits and skunks.
Areas: North America, Central Asia, Western and Central Europe.

RAIN FOREST

Weather: warm temperatures with frequent rainfall.
Plant life: home to the world's most diverse species. Very tall trees that form an above ground canopy.
Animal life: Animals thrive under the canopy (monkeys).
Areas: Found in regions of Asia, western Africa and South America.

BOREAL FOREST

Weather: low temperatures, limited rainfall, and warm summers.
Plant life: evergreen conifers.
Animal life: limited animals due to harsh weather; Summer sees migratory birds.

Areas: stretch across Canada, Scandinavia and Russia.

MEDITERRANEAN FOREST

Weather: Hot, dry summers and mild cool winters.
Plant life: Everygreen shrubs (sage, thyme etc), trees such as pine, cedar and olive.
Areas: west coasts of continents, include California, Chile, Mediterranean area.

MANGROVE

Weather: swampy land, existing between the border of fresh and saltwater areas.
Plant life: Mangrove trees are the most common. Algae, seaweeds grow from tree trunks and roots.
Animal life: Birds such as herons, egrets are common along with aquatic animals.
Areas: Found along Indian Ocean, Pacific coast of southern Asia, Caribbean, along Mexico.

GRASSLAND AND SAVANNA

Weather: rainfall for a few months of the year followed by a dry season.
Plant life: grasses and shrubs.
Animal life: rich and diverse - lions, leopards, antelopes
Areas: cover half of Africa; large portions of South America, Australia and India; steepes of North Asia.

DESERT & DRY SHRUBLAND

Weather: high temperatures and low rainfall, dry climate.
Plant life: has adapted due to less water, eg: Cactus, Yucca, Agave, Prickly pear.
Animal life: spiders, gila monsters, peccary etc that are able to eat cactus leaves and fruit.
Areas: Sahara in Africa, Mojave in United States, Thar in India.

TUNDRA & ICE CAP

Weather: Very low temperatures due to large Arctic and Antarctic air flows. Also called 'cold desert'.
Plant life: sturdy lichens, low growing flowers, grasses.
Animal life: polar bear, arctic fox, caribou, reindeer, migratory birds.
Areas: Extends from Alaska, through Canada, around Greenland, northern coast of Russia.

MARINE

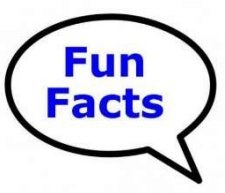
Are divided into two:

- tidal estuaries (where freshwater and saltwater meet)
- coral reefs (anchored by colonies of coral, marine invertebrate species).

FRESHWATER

- Found worldwide in the form of small ponds, large glacial lakes, water bodies that are fed by snow melt and rain.
- Support plant and animal life adapted to low salt content

These biomes that are a product of climate and nature, have been influenced over several years, by human presence, through urbanisation, development, global warming etc. This has caused a loss in biodiversity. United Nations Intergovernmental Panel on Climate Change has documented such effects.



- When the oxygen level is lower, the air is termed as 'thin'.
- Humidity is the amount of moisture in the air, and can be felt at warmer temperatures.
- Snowflakes come in seven different shapes.
- The temperature in the Arctic has risen about 5.5° F since 1980.
- Leaves that fall from trees, decay and enrich the soil.
- Deserts cover about one-fifths of the Earth.
- Permanently frozen soil, found in the Arctic, is called permafrost.
- Abyss is the deepest part of the ocean where no light penetrates.
- Deforestation is the cutting of trees for its wood, or to clearing the land for various purposes.
- 30 million is the estimated number of insect species living in rainforests.
- Half of all plant and animal species live in tropical rainforests.
- The largest biome of all is the ocean, covering three-quarters of the planet's surface.
- Part of the Amazon rainforest is currently on fire.
- The Great Barrier Reef is the largest single structure made by living organisms, and is visible from space.

CHAPTER 5
Our India

India is the seventh largest country in the world in terms of area (covered area is about 3.28 million sq. km), and the second most-populous country (current population is 1.366 billion, equivalent to 17.71% of the total world population).

HISTORY

Civilization in India began around 2500 BC, when the inhabitants of the Indus Valley began commercial and agricultural trade. Around 1500 BC, the Indus Valley civilization began to decline, likely due to environmental changes. At this time, Aryan tribes migrated into the Indian subcontinent and flourished in the Ganges River valley. Throughout ancient and medieval India, a number of kingdoms ruled the country and specifically in the fourth and fifth centuries AD. Northern India was unified under the Gupta Dynasty and this period is referred to as "India's Golden Age," where Hindu culture, language and politics reached unprecedented growth.

Islam expanded across India over the next 500 years. During the 10^{th} and 11^{th} centuries, the Turks and Afghans invaded India and established capitals in Delhi. In the 16^{th} century, successors of Genghis Khan swept across the Khyber Pass and established the Mughal Dynasty, which lasted for over 200 years in India. South India was dominated by Hindu Chola and Vijayanagar dynasties between the 11^{th} and 15^{th} centuries. The Hindu and Muslim systems of North and South India mingled and culturally influenced each other, leaving a lasting impact in the region.

The first British colony of India was established in 1619 in Surat (present day Gujarat). Later in the century, the East India Company opened trading stations at Madras (present day Chennai), Bombay (present day Mumbai), and Calcutta (present day Kolkata).

For the next 200 years, the British expanded their influence across India, and by the 1850s, Britain controlled most of India, Pakistan, and Bangladesh. In 1857, a rebellion in North India, referred to as India's First War of Independence led by a mutiny, caused the British Parliament to transfer all political power from East India Company to the British Crown. Great Britain began controlling most of India directly while managing the rest through treaties with local rulers.

In the late 1800s, Indian counsellors were appointed to advise the British viceroy and participate in legislative councils, enabling Indians to take initial steps towards self-government. Around 1920, Mohandas K. Gandhi (Father of Our Nation) organized mass civil disobedience movements to protest against the continued British colonial rule.

On August 15, 1947, India became independent from British rule, along with Pakistan. Hostility between Hindus and Muslims had led the British to partition British India, creating East and West Pakistan, with Muslim majorities. Pakistan's independence sparked unprecedented and prolonged riots across India and Pakistan, resulting in millions of Indian Muslims migrating to Pakistan and millions of Pakistani Hindus and Sikhs migrating to India. Approximately 500,000 people died as a result of riots that broke out between Sikhs, Hindus, and Muslims when pre-partition Punjab and Bengal was divided. Furthermore, disputes arose over several states including Kashmir, whose ruler had illegally entered India following an invasion by Pashtun tribesmen from Pakistan. This led to the First Kashmir War in 1948 that ended in Pakistan administrating one-third of the

state. In 1971, Bangladesh, formerly East Pakistan and East Bengal, freed from Pakistan and became its own country.

Post-Independence

Jawaharlal Nehru became the country's first prime minister and India became a republic on January 26, 1950. After independence, the Congress Party, the party of Mahatma Gandhi and Jawaharlal Nehru, primarily ruled India under the leadership of Nehru and then his daughter, Indira Gandhi, and grandson, Rajiv Gandhi, with the exception of two brief periods in the 1970 and 1980s. Prime Minister Nehru governed India until his death in 1964. He was succeeded by Lal Bahadur Shastri, who also died in office. In 1966, power passed to Nehru's daughter, Indira Gandhi, who served as PM from 1966 to 1977.

In 1975, with an onslaught of serious political and economic problems in the country, Mrs. Gandhi declared a state of emergency and suspended many civil liberties. Seeking justification from the public for her policies, she called for elections in 1977, only to be defeated by Morarji Desai, who headed the Janata Party, a coalition of 5 opposition parties. In 1980, Indira Gandhi returned to power but was assassinated on October 31, 1984. She was India's first and, to date, only female prime minister.

GEOGRAPHY

Location

India lies on the Indian Plate, which is the northern portion of the Indo-Australian Plate, and extends between 8°4' and 37°6' N latitude and 68°7' and 97°25' E longitude. The Tropic of Cancer 23°30' N divides India into almost two halves. The Indian peninsula tapers southwards resulting in the division of the Indian Ocean into two water bodies - the Bay of Bengal and the Arabian Sea. The Indian sub-continent lies completely to the north of the Equator.

Physiographic Regions

On the basis of its relief features, tectonic history and stratigraphy, India can be divided into several physical units. The **Himalayas** in the North and North-eastern region, separate India from the Tibetan plateau. The Himalayan region consists of three parallel ranges:

* Himadri or Inner Himalaya or Greater Himalaya - the continuous range, with the loftiest peaks, perennially covered with snow. Are a source of famous glaciers like the Siachen Glacier, the Gangotri and Yamunotri, etc.
* Himachal or lesser Himalaya - home to great valleys like Kashmir Valley, Kangra Valley, Kullu Valley; and hill stations like Kullu-Manali, Kufri, Shimla, Mussoorie, Nainital.
* Shivaliks or Outer Himalaya - extend through Pakistan, India, Nepal and Bhutan. Are known for the 'Dun' valleys and Terai region. Dehra, Kothri, Chaukham, Patli and Kota are the major ‘duns’ of the region.

The **Indo-Gangetic Plain**, also known as Indus-Ganga or the North Indian River Plain, lies between the great northern mountain and peninsular plateau. It is formed by three major rivers - the Ganges, the Indus, the Brahmaputra and their tributaries. The plain is divided into three sections:

* Punjab Plains - major portion is in Pakistan; formed by Indus and its tributaries- Beas, Chenab, Jhelum, Ravi, and Sutlej.
* Ganges Plains - Haryana, Delhi, UP, Bihar, parts of Jharkhand and West Bengal lie in the Ganga plains. Formed by the Ganga and its tributaries. it is the largest part of the Northern Plains.
* Brahmaputra Plains - lie mainly in Assam built by Brahmaputra and its tributaries.

The **Peninsular Plateau** is a tableland and its characteristic features include shallow valleys and rounded hills, made of

igneous and metamorphic rocks. It has black soil which is known to originate from volcanic eruptions. It is broadly divided into two regions:

* Deccan Plateau - a triangular shaped plateau bound by the Satpura range in the North, the Western Ghats in the West and the Eastern Ghats in the East. Rivers Kaveri, Godavari and Krishna flow through it. It stretches across eight states of India.
* Central Highlands - consists of the Malwa Plateau, Chotanagpur Plateau, Meghalaya Plateau, Vidhya Range, Satpura Range and Aravalli Range. Major portion is covered by the Malwa Plateau which is spread across parts of Gujarat, Rajasthan and Madhya Pradesh. Vindya ranges border it in the south and Aravalli in the North-west. Chambal River and its tributaries.

The **Coastal Plains** span between the Arabian Sea in the West to the Bay of Bengal in the East. They are divided into two:

* The Eastern Coastal Plain - lies between the Eastern Ghats and the Bay of Bengal. They stretch from Tamil Nadu to West Bengal passing through Andhra Pradesh and Odisha. The rivers which flow through it are Krishna, Kaveri, Godavari and Mahanadi.
* The Western Coastal Plain - is sandwiched between the Western Ghats and the Arabian Sea and extends from Gujarat in the north and covers the regions of Maharashtra, Goa, Karnataka and Kerala. There are numerous rivers and backwaters in this region.

The **Indian Desert**, covers an area of 200,000 square miles, with India's only desert - Thar. The 18th biggest desert in the world, covers a large part of Rajasthan extending to Gujarat, Haryana and Punjab. It covers over 60% of the geographical area of Rajasthan and also extends to Pakistan where it is known as Cholistan Desert. Luni is the only river in this desert and it receives very little rainfall. The salt marsh

located in Kutch, Gujarat known as the Great Rann of Kutch, falls into this desert.

India has two major groups of **islands** which are also classified as Union Territories - Andaman and Nicobar Islands (Bay of Bengal), and Lakshadweep Islands (Arabian Sea). Andaman and Nicobar Islands are larger in size comprising of 572 islands. Andaman is located in the north and Nicobar is located in the south. Located close to equator they experience equatorial type of climate and also have thick forest cover. Barren Islands of Andaman is India's only active volcano. Lakshadweep covers an area of 32 sq. km, with a total of 35 coral islands and islets rich in flora and fauna.

States and Union Territories

India comprises of 29 states and seven union territories, the largest being Rajasthan and the smallest being Goa. Uttar Pradesh is the most populous state. Gujarat is one of the most prosperous of all Indian states. Kerala is the state with 100% literacy. Delhi, the capital of India, is a union territory.

On August 5, 2019, the government revoked Article 370 of the Constitution that gave special status to Jammu and Kashmir and bifurcated the state into two Union Territories -- Jammu and Kashmir, and Ladakh.

Water Resources

India is surrounded by water from three sides - Arabian Sea in the west, Bay of Bengal in the east and Indian Ocean in the south. There are 12 major rivers in the country. The river Brahmaputra is a trans-boundary river, originating in Tibet and entering India in Arunachal Pradesh. The river Ganga is the longest river and most pious river in India. It has several tributaries including River Yamuna, which is the only water body near the national capital - New Delhi. River Chambal, a tributary of Yamuna, passes through Madhya Pradesh, Rajasthan and Uttar Pradesh. The other major rivers in India

include Narmada River, originating at Amarkantak in Madhya Pradesh; river Godavari, originating at Trayambakeshwar in Maharashtra; river Krishna, originating at Mahabaleshwar; river Kaveri, passing through Karnataka and Tamil Nadu; Mahanadi River flowing through Chhattisgarh and Odisha.

Political Boundaries

India shares international borders with Pakistan on its West, and Nepal, China and Bhutan on its Northeast. Surrounded by Myanmar and Bangladesh to its East, Sri Lanka lies to the South with Andaman and Nicobar Islands close to Thailand and Indonesia. Political boundaries of Pakistan and Bangladesh with India are traced according to the Radcliffe Line. The Line of Control (LoC) delineates the borders of India and Pakistan and serves as a boundary between the administered areas of Kashmir in both the countries. The McMahon Line divides India and China. India-Bangladesh border is one of the longest borders of the world.

Climate

India has a variety of climates, varying from arid desert in the West, alpine climate in the Himalayan North to the humid tropical regions which support the island territories along with the rainforests in the southwest. The climate is altered by the Thar Desert and the Himalayas. Some areas in the north have severe summers and extreme winters, with temperatures reaching freezing points. India has four different types of seasons - winter, summer, monsoon and post-monsoon. In some states, the temperature in summers rise up to 45°C and minimum temperature decreases to as low as 15°C. In winters, the average temperature is about 10-15°C. The highest temperature recorded in India so far is 50.6°C in Alwar, Rajasthan. The lowest temperature was recorded in Kashmir at -45°C.

MINERAL RESOURCES

A naturally occurring substance that has a definite chemical composition is called a mineral. Minerals are not evenly distributed. They are concentrated in a particular area or in rock formations.

How many types of minerals are there?

There are over three thousand different minerals. On the basis of composition, minerals are classified mainly as metallic, non-metallic minerals and radioactive minerals. **Ferrous minerals** like iron ore, manganese and chromites contain iron. A **non-ferrous mineral** does not contain iron but may contain some other metal such as gold, silver, copper or lead.

Metallic minerals such as Copper, Zinc, Iron, Chromium, Bauxite, Manganese are abundantly found in India.

Non Metallic minerals include Mica, Limestone, Dolomite and Phosphate, of which Mica is the most important one. They are found all over India.

Radioactive Minerals – Andhra Pradesh is the largest producer of Uranium in India. The Monazite sands of Kerala are rich in Thorium reserves.

INDIAN POLITY & CONSTITUTION

By its constitution, India is a "sovereign socialist secular democratic republic" with a parliamentary system of government. India adopted its constitution in 1949 and it came into force in 1950.

The system of government in states resembles that of the Union. In the states, the governor, as the representative of the President, is the head executive, but real executive power rests with the Chief Minister who heads the Council of

Ministers. The Council of Ministers of a state are collectively responsible to the elected legislative assembly of the state.

President: The president is the constitutional head of the Union and is elected by members of an electoral college consisting of elected members of both houses of parliament and legislative assemblies of the states. However, real executive power lies with the Council of Ministers lead by the prime minister. The Council of Ministers is collectively responsible to the Lok Sabha, the house of the people.

Vice-president: The vice-president is elected by the Electoral College and holds office for 5 years. They are ex-officio Chairman of the Rajya Sabha.

Council of Ministers: The Council of Ministers comprise of cabinet ministers, ministers of states and deputy ministers. The prime minister communicates all decisions of the Council of Ministers related to administration of affairs of the Union to the President. Generally, each department has an officer or secretary that advises the ministers on policy matters and general administration.

Cabinet Secretariat: The Cabinet Secretariat plays an important role in decision-making at the highest level and operates under the supervision of the Prime Minister. The legislative arm of the Union, the Parliament, consists of the President, Rajya Sabha and Lok Sabha. All legislation requires consent of both houses of Parliament. In the case of financial legislation, the Lok Sabha has the ruling vote.

Rajya Sabha: The Rajya Sabha consists of 245 members, of which 233 represent states and union territories and 12 members are nominated by the President. Elections to the Rajya Sabha are indirect—members are elected by the elected members of legislative assemblies of the concerned states.

Lok Sabha: the Lok Sabha is composed of representatives of the people chosen by direct election. The term of the Lok Sabha is 5 years.

Party recognition: If a political party is recognized in four or more states, it is considered a national party. The most prominent national parties in India include: Congress Party, Bharatiya Janata Party, Janata Dal, and Communist Party of India. There are over 1,000 registered national and regional parties in the country.

NATIONAL SYMBOLS

National Flag:
A horizontal rectangular tricolour with equally sized - saffron at the top, white in the middle and green at the bottom. In the centre, is a navy blue wheel with twenty-four spokes, known as the Ashoka Chakra.

National Emblem:
An adaptation of Lion Capital of Ashoka at Sarnath was adopted as the National Emblem of India on 24 January 1950, the day India became a republic. Forming an integral part of the emblem is the motto inscribed in Devanagari script: "Satyameva Jayate" (English: Truth Alone Triumphs).

National Anthem:
Jana Gana Mana by Rabindranath Tagore was officially adopted by the Constituent Assembly as the Indian national anthem on 24 January 1950.

National Song:
The first two verses of Vande Mataram by Bankim Chandra Chatterjee was adopted as the National song of India in 1950. "Vande Mataram" was sung during the 1896 session of the Indian National Congress by Rabindranath Tagore.

National Fruit:
Mango originated in India and the country is home to more than 100 varieties.

National River:
Ganga is the longest river of India with the most heavily populated river basin in the world. The river is revered by Hindus as the most sacred river on Earth.

National Tree:
Indian banyan root themselves to form new trees and grow over large areas. Because of this characteristic and its longevity, it is considered immortal and is an integral part of the myths and legends of India.

National Animal:
The Bengal tiger is found only in the Indian subcontinent and can be found in most regions of the country.

National Bird:
Indian peacock is designated as the national bird of India. A bird indigenous to the subcontinent, the peacock represents the unity of vivid colours and finds several references in Indian culture.

National Flower:
The Lotus

CHAPTER 6
Miscellaneous Floating Facts

GEOGRAPHICAL SOBRIQUETS

Blue Mountains	:	Nilgiri Hills
City of Motor Cars	:	Detroit
City of Seven Hills	:	Rome
City of Skyscrapers	:	New York
Cockpit of Europe	:	Belgium
Eternal City	:	Rome
Forbidden City	:	Lhasa
Gift of the Nile	:	Egypt
Hermit Kingdom	:	Korea
Holy Land	:	Jerusalem
Island Continent	:	Australia
Island of Cloves	:	Madagascar
Island of Pearls	:	Bahrain
Key to the Mediterranean	:	Gibraltar
Land of Five Rivers	:	Punjab
Land of Maple Leaf	:	Canada
Land of the Midnight Sun	:	Norway
Land of the Rising Sun	:	Japan
Land of Thousand Lakes	:	Finland
Land of the Thunderbolt	:	Bhutan
Land of White Elephants	:	Thailand
Pink City	:	Jaipur
Playground of Europe	:	Switzerland
Queen of the Adriatic	:	Venice
Roof of the World	:	Pamir Plateau
Sorrow of Bengal	:	Damodar River
Sugar Bowl of the World	:	Cuba
Venice of the North	:	Stockholm
Windy City	:	Chicago
Yellow River	:	Huang River

HUMAN BODY AT A GLANCE

Biggest organ	:	Liver
Heart Beat Rate	:	72 times in a minute
Master Gland	:	Pituitary gland
Number of Bones	:	206
Number of Chromosomes	:	46 or 23 pairs
Normal Blood Pressure	:	80 to 120
Number of Teeth	:	32
Largest Part of Human Brain	:	Cerebrum

LONGEST AND SHORTEST DAYS

Longest day	:	21st June
Shortest day	:	22nd December

LARGEST CONTINENTS – TOP 5

Asia
Africa
North America
South America
Antarctica

LARGEST OCEANS – TOP 5

Pacific Ocean
Atlantic Ocean
Indian Ocean
Southern Ocean
Arctic Ocean

LONGEST RIVERS – TOP 5

The Nile	:	North East Africa
The Amazon	:	South America
The Yangtze	:	China
The Mississippi-Missouri	:	North America
Yenisei-Angara-Selenga	:	Russia & Mongolia

HIGHEST MOUNTAINS – TOP 5

Mount Everest	:	8,848 m
K2	:	8,611 m
Kanchenjunga	:	8,586 m
Lhotse	:	8,516 m
Makalu	:	8,463 m

MOST POPULATED COUNTRIES – TOP 5

China	:	1.433 billion
India	:	1.366 billion
United States of America	:	329 million
Indonesia	:	270 million
Pakistan	:	216 million

BIGGEST COUNTRIES (by land area) – TOP 5

Russia
Canada
United States of America
China
Brazil

LARGEST ISLANDS – TOP 5

Greenland	:	North Atlantic region
New Guinea	:	Southwest Pacific
Borneo	:	South East Asia
Madagascar	:	Indian Ocean
Baffin Island	:	North Atlantic

SEVEN WONDERS OF THE WORLD

Great Wall of China	:	China
Petra	:	Jordan
The Colosseum	:	Italy
Chichen-Itza	:	Mexico
Machu Picchu	:	Peru
Taj Mahal	:	India
Christ the Redeemer	:	Brazil

SAMPLE QUESTIONS

Choose the right answer:

1) Which of the following is not required for the process of Photosynthesis?
   (a) Water (b) Chlorophyll (c) Sunlight (d) Oxygen

2) True or False: Seasons occur as the Earth revolves around the Sun.
   (a) True (b) False

3) What is the lowest point in Asia?
   (a) Caspian Sea (b) Dead sea (c) Lake Baikal (d) Mariana Trench

4) True or False: Ice is lighter than water.
   (a) True (b) False

5) Palaeolithic, Mesolithic and Neolithic are sub-types of which Age of Human History?
   (a) Metal Age (b) Bronze Age (c) Iron Age (d) Stone Age

6) Which is the most populous country in the world?
   (a) France (b) China (c) India (d) USA

7) Stars are born from interstellar dust and hydrogen gas called _____.
   (a) Planet (b) Blackhole (c) Nebulae (d) Galaxy

8) True or False: The British, represented by the East India Company, established commercial control over India.
   (a) True (b) False

9) In which year did India get independence from the British?
   (a) 1830 (b) 1857 (c) 1947 (d) 1961

10) Which biome is characterized by rainfall for a few months of the year followed by dry season?
   (a) Mangrove (b) Marine
   (c) Rain Forest (d) Grassland & Savanna

11) _____ was the first human civilization of the ancient world?
   (a) Harappan (b) Indus Valley (c) Mesopotamia (d) Mayan

12) In 2006, which planet was downgraded to a 'dwarf planet'?
   (a) Mercury (b) Mars (c) Venus (d) Pluto

13) True or False: All lines of longitude meet at the North and South Poles.
   (a) True (b) False

14) What is the name of the outermost layer of Earth which extends directly into space?
(a) Mesosphere (b) Troposphere
(c) Exosphere (d) Stratosphere

15) _____is the practice by ancient Egyptians to preserve the body after death?
(a) Mummification (b) Classification
(c) Civilisation (d) Toxification

16) Leaves that falls from tree, decay and _____ the soil?
(a) Infect (b) Enrich (c) Spoil (d) Rot

17) True or False: Indira Gandhi was India's 1st and only female Prime Minister.
(a) True (b) False

18) True or False: The Scientific name for humans is Homo sapiens.
(a) True (b) False

19) The study of making maps is called _____.
(a) Calligraphy (b) Cartography (c)Isography (d) Otography

20) Which Indian celebration is visible from space?
(a) Kumbh Mela (b) Christmas (c) Dussehra (d) Holi

21) The Permanent loss of a plant or animal species when they fail to reproduce at the rate as they die is called_____.
(a) Reproduction (b) Exploration
(c) Extinction (d) Depletion

22) What is the process of ancient moneyless trading system called?
(a) Paytm (b) Banking (c) MobiKwik (d) Barter

23) Who is the Supreme Commander of Indian Armed Forces (comprising of Indian Army, Indian Navy, and Indian Air Force)?
(a) Prime Minister (b) Vice President
(c) Chief Justice (d) President

24) The process of respiration in the absence of oxygen is called_____.
(a) Fermentation (b) Oxygenation
(c) Deoxygenation (d) Cellular respiration

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