

Solar System – GK Notes in PDF

Our little corner of the Universe is called the solar system. Questions on the Solar System funnily turn up in both Geography and Science. You can find a few questions on the Solar System in many competitive recruitment exams like Railways RRB, SSC CGL, SBI PO, SBI Clerk, IBPS Clerk, and IBPS PO. So understand the basics of the Solar System in these GK Notes. You can download this Solar System article for revision later.

The Solar System

The solar system consists of the Sun and its eight main planets, their satellites, asteroids, comets, meteors and other dwarf planets. The Sun is at the one of the two “centers” of the Solar system and the planets revolving around it in elliptical orbits. Let us take a look at some quick facts about the Solar System:

- The closest planet to Sun is Mercury and the farthest is Neptune.
- Pluto is a dwarf planet – relegated from its status as the ninth planet.
- The eight planets of the solar system are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune.
- You can remember the order using the mnemonic: My Very Energetic Mother Just Showed Us Night-sky.



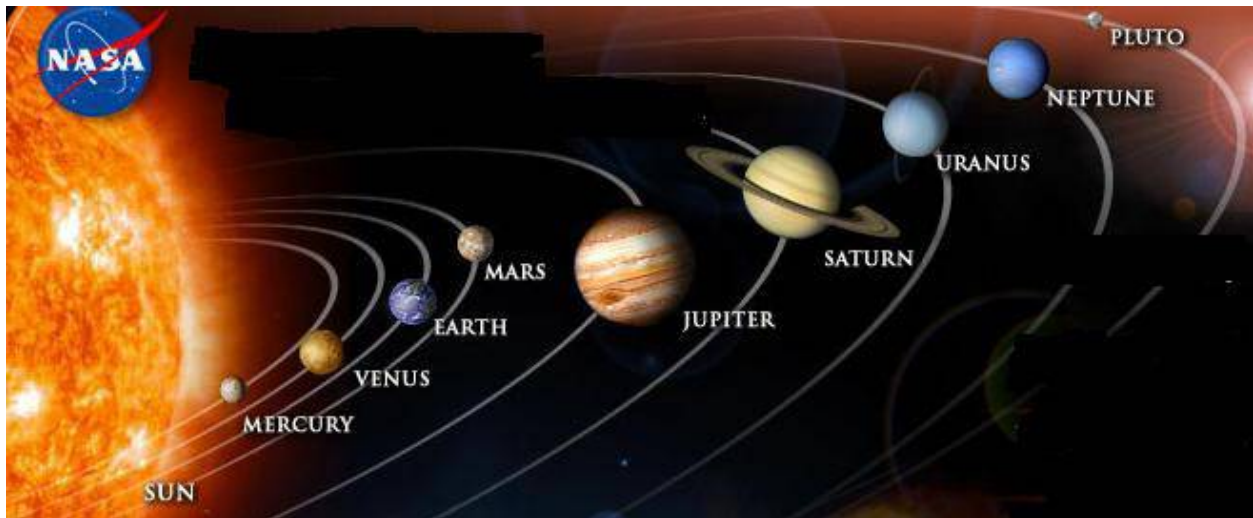


Image source: NASA

The Sun

The Sun is the primary source of energy for life on Earth. It is the closest star to the Earth, about 150 million kilometers from earth. The temperature of the Sun's visible surface (photosphere) is about 6000 degree Celsius. However, the outer layer of Sun's atmosphere, known as the Corona, is, on an average, about 2 million degree Celsius. The core of the sun is the center, and is about 15 million degree Celsius.

The Sun is made up of 73% hydrogen and 25% helium. It also has trace amounts of oxygen, carbon, iron and other elements. It is classified as a G-Type Main Sequence Star. It is about 4.6 billion years old and will continue to shine for another 5 billion years. After that it will grow into a Red Giant and then finally end its life as a white dwarf.



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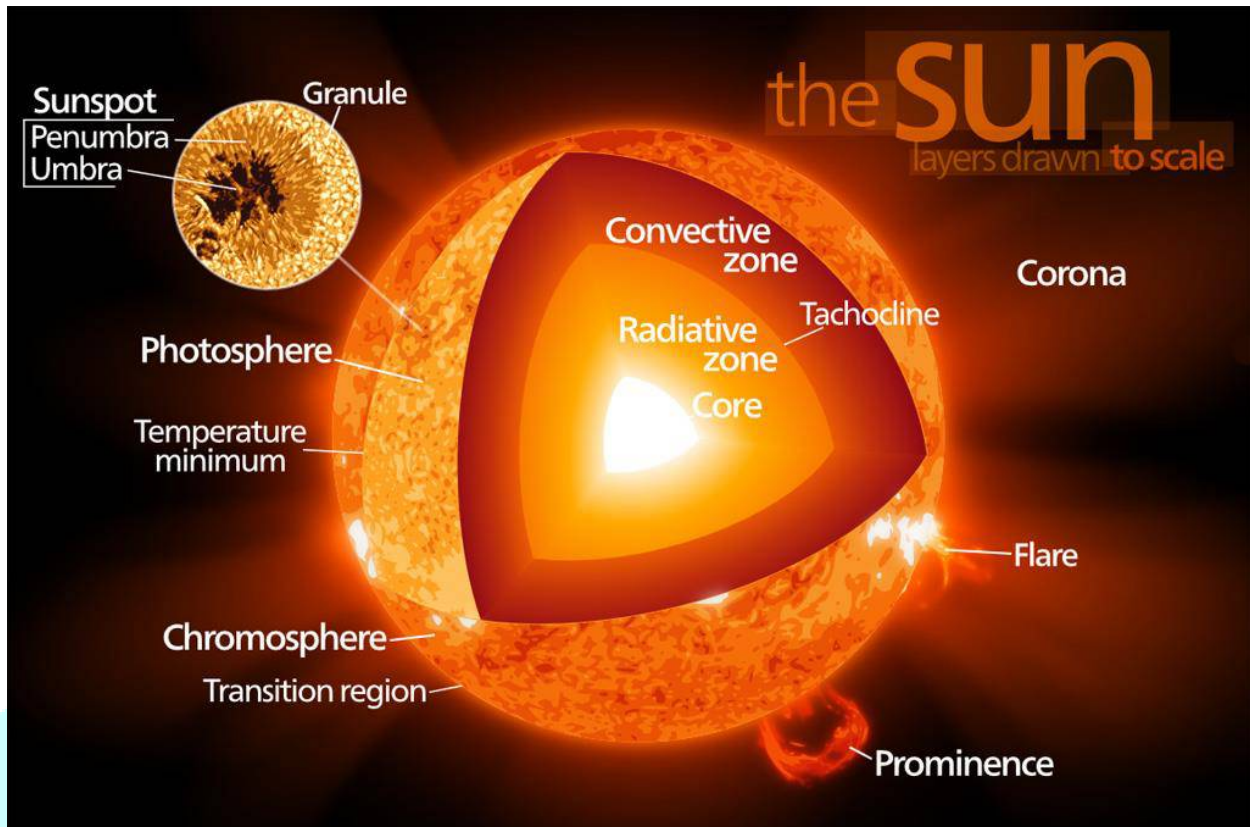


Image source: <http://www.wikipedia.com>

The Planets

There are a total eight planets in the solar system -

- The planets are divided in the two groups - Inner planets and Outer planets.
- Inner planets - Mercury, Venus, Earth, Mars. These are also known as terrestrial planets or rocky planets. These are denser and have a shorter periods of revolution.
- Outer planets - Jupiter, Saturn, Uranus, Neptune. These are also known as Gas Giants or Gaseous planets. They are big in size and have a longer periods of revolution.
- Jupiter is the biggest planet in the Solar System and Mercury is the smallest.



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Mercury

- Closest planet to the Sun.
- Orbits the Sun the quickest.
- No significant atmosphere.
- Rotation period is longer than its orbital (revolution) period.
- No natural satellites (moons).
- Spacecrafts to Mercury: Mariner 10, MESSENGER, BepiColombo (upcoming).
- Can be seen from the earth only before sunrise and after sunset.

Venus

- Known as Earth's twin.
- Longest rotation period of any planet.
- Rotation period is longer than its orbital (revolution) period.
- Hottest planet in the solar system.
- Dense atmosphere of gases and chemicals including sulphuric acid clouds.
- Revolves around the sun in clockwise manner while most others are revolving in anti-clockwise.
- Second brightest natural object in the night sky (after Moon).
- Can be seen from the earth only before sunrise (Morning Star) and after sunset (Evening Star).
- No natural satellites (moons).
- First planet visited by a spacecraft.
- Spacecrafts to Venus: Mariner 2, Venera 7, Magellan etc.

Earth

- Only planet in the solar system to be known to support life.
- Has water in all three states – liquid, solid and gas.
- Gases present in the earth's atmosphere are Nitrogen, Hydrogen, Oxygen, Carbon Dioxide etc
- It takes 23 hour 56 minutes 46 seconds to rotate around its axis.
- It takes 365.26 days to revolve around the Sun.
- The Ozone layer present in the Earth's atmosphere protects it from the ultra violet rays.
- Moon is the only natural satellite of the Earth.



Mars

- Known as the 'Red Planet' due to presence of iron-rich red soil.
- Despite its red colour, it is cold because it has lost most of its atmosphere.
- Phobos and Deimos are the two moons of Mars.
- Has polar ice caps and traces of sub-terrestrial liquid water has been found.
- Has the largest known volcano (and second tallest mountain) in the solar system – Mons Olympus.
- Spacecrafts to Mars: Mariner 4, 2001 Mars Odyssey, Mars Orbiter Mission (India), MAVEN etc.
- Rovers on Mars: Opportunity, Curiosity, Spirit (decommissioned).

Jupiter

- Largest planet of the solar system.
- Has two and a half times the mass of all other planets put together.
- Has the shortest rotation period.
- A gas giant, primarily composed of hydrogen and helium with no discernible solid surface.
- Has a giant storm (three times the diameter of earth) since 1831 called the 'Great Red Spot'.
- Has a faint ring around it.
- Has 67 moons.
- 4 largest moons discovered by Galileo – Ganymede (largest moon in the solar system – bigger than Mercury), Callisto, Io (volcanic), Europa (has water-ice).
- Missions to Jupiter: Galileo, Juno (upcoming).

Saturn

- Second largest planet in the Solar system.
- Its density is less than the water.
- Has a band of concentric rings revolving around it made up of tiny rocks and pieces of ice.
- Has 62 moons.
- Moons of Saturn: Titan is the largest (has a major atmosphere, complex organic chemistry and ICE VOLCANOES!!), Rhea (may have its own ring system), Enceladus.
- Missions to Saturn: Cassini-Huygens.



Uranus

- Discovered by Sir William Herschel.
- Blue-green (cyan) in colour.
- Third biggest planet of the solar system.
- Composed of Hydrogen, Helium, Water, Ammonia, Methane.
- It is tilted sideways so that its poles lie where most other planets have their equators.
- Has faint rings.
- Has 27 known moons (5 main – Miranda, Ariel, Umbriel, Titania, Oberon).
- Spacecraft Flyby: Voyager 2.

Neptune

- Discovered by mathematical predictions and disturbances in Uranus' orbit.
- First proposed by Alexis Bouvard, and first observed by Johann Galle.
- Farthest planet from the Sun.
- Primarily composed of hydrogen, helium, nitrogen, water, ammonia, methane.
- Is blue in colour because of methane.
- Has a storm called 'Great Dark Spot'.
- Has 14 known moons (Triton – largest)
- Spacecraft Flyby: Voyager 2.

Pluto

- Used to be the ninth planet.
- Demoted to status of "Dwarf Planet".
- Icy and cold.
- Has five moons – Charon, Styx, Nix, Kerberos, Hydra.

Asteroids

- Almost like planets but smaller in size.
- Not spherical in appearance.
- Revolve around the Sun.
- Most of them are found in a belt between Mars and Jupiter.
- The largest asteroid in the Asteroid Belt is Ceres.



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Meteorites

- Meteoroids are formed due to the collisions between asteroids.
- They are fragments of rocks floating about in space.
- Sometimes they come across earth and fall into the earth's atmosphere. That's when they become meteors or "shooting stars".
- Most of these meteors can't reach earth's surface and burn up in the atmosphere due to the friction with air.
- The meteors that do reach the earth's surface are known as meteorites.

Comets

- Tiny icy and rocky bodies that travel in highly elliptical orbits around the sun.
- When they pass close to the sun, they water and gases heat up.
- This leads to the formation of a tail behind the rocky core in the direction opposite to the sun.
- Most famous comet is Halley's Comet which reappears every 75-76 years.
- Last appeared: 1986. Next appearance: 2061.

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