



# Six Exoplanets Found Orbiting Around HD 110067

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## Why in News?

A recent study published in **Nature** has unveiled the discovery of **six exoplanets** orbiting a nearby **bright star, HD 110067**, located in the **Coma Berenices constellation**.

- These planets referred to as 'sub-Neptunes', were detected and characterized by using data from two space telescopes: [National Aeronautics and Space Administration's \(NASA\) Transiting Exoplanet Survey Satellite \(TESS\)](#) and [European Space Agency's \(ESA\) Characterising Exoplanet Satellite \(CHEOPS\)](#).

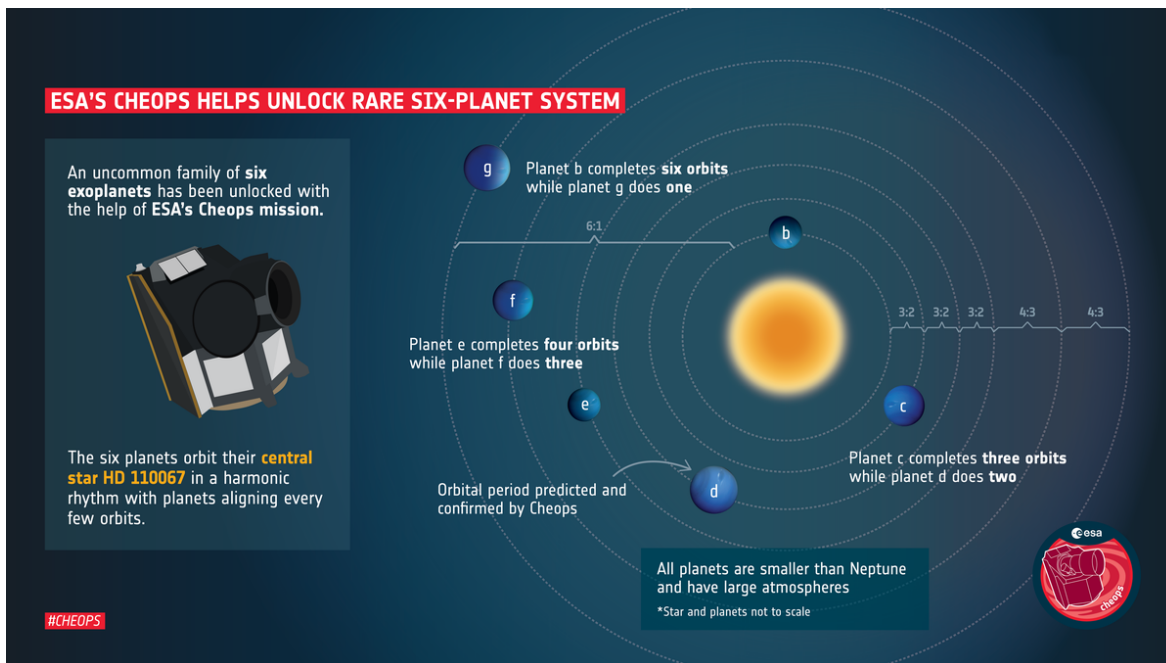
## Note

- CHEOPS is ESA's first space mission dedicated to studying bright, **nearby stars that are already known to host exoplanets**, in order to make high-precision observations of the planet's size as it passes in front of its host star.

## What are the Key Facts about Sub-Neptunes?

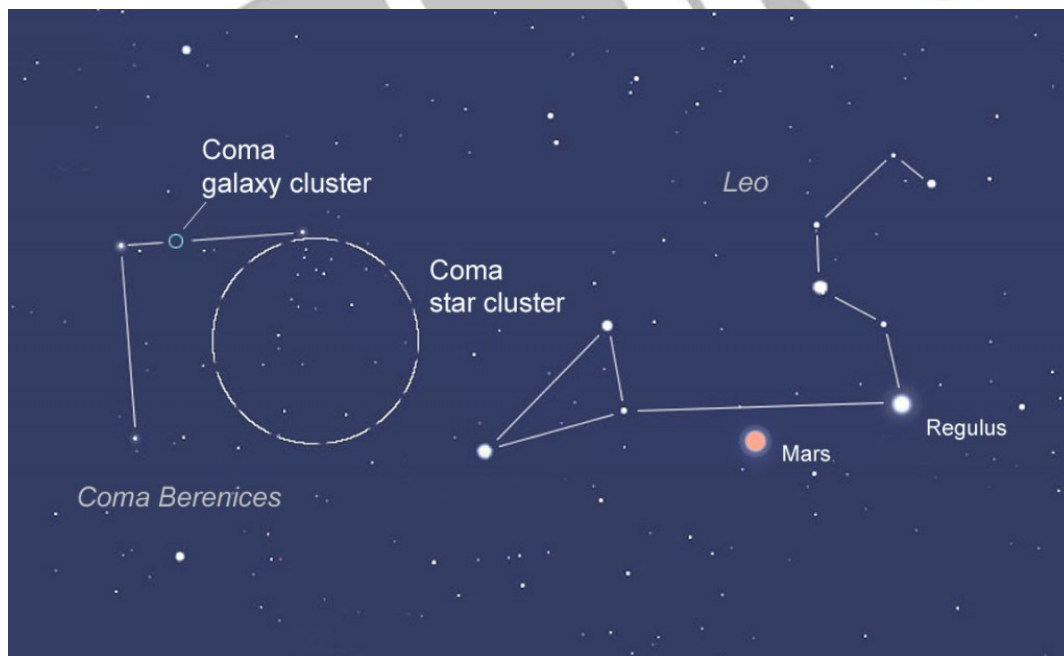
- The six exoplanets in the HD 110067 system are classified as '**sub-Neptunes**.'
  - **Planets with radii between that of the Earth and Neptune are referred to as 'sub-Neptunes'**.
  - Calculations of their masses and densities indicate the presence of relatively low-density atmospheres, **potentially rich in hydrogen**.
- All six planets are in **resonant orbits**, in which the planets exert regular forces on each other as they orbit.
  - This feature suggests that the system remains practically unchanged since its birth, at least four billion years ago.
- The planets are named **HD 110067 b, c, d, e, f, and g**, in order of increasing distance from the star.

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## HD 110067

- The star is called HD 110067, and it is located about 100 light-years away from Earth, located in the Coma Berenices constellation.
- It is visible from the Northern Hemisphere, and it is the brightest star found to host more than four transiting exoplanets to date.
  - The Coma Berenices constellation, also known as Berenice's Hair, is a medium-sized constellation in the **northern celestial hemisphere**. It's visible in both hemispheres, but is most easily seen in the northern hemisphere during spring and summer.



## What is an Exoplanet?

- Exoplanets are **planets that orbit other stars and are beyond our solar system**.

- The first confirmation of detection of exoplanets occurred in 1992.
- According to NASA, to date, more than 5,000 exoplanets have been discovered.

## UPSC Civil Services Examination, Previous Year Question (PYQ)

### Prelims

**Q. The term 'Goldilocks Zone' is often seen in the news in the context of (2015)**

- (a) the limits of habitable zone above the surface of the Earth
- (b) regions inside the Earth where shale gas is available
- (c) search for the Earth-like planets in outer space
- (d) search for meteorites containing precious metals

**Ans: (c)**

**Exp:**

- The 'Goldilocks Zone' refers to the habitable zone around a star where the temperature is just right - not too hot and not too cold - for liquid water to exist on a planet.
- Since liquid water is essential for life as it has potential to accommodate biotic organism, thereby, it is called 'habitable zone'.
- **Therefore, option (c) is the correct answer.**

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