# TOI 700 d

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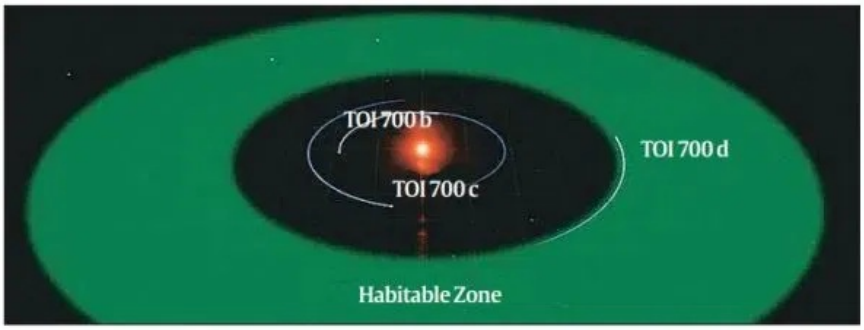
## Why in News




The **National Aeronautics and Space Administration (NASA)** has reported the discovery of an **Earth-size planet**, named **TOI 700 d**.

- The planet was found by **NASA's Transiting Exoplanet Survey Satellite (TESS) mission**, which was launched in 2018. With TOI 700 d, TESS has discovered its first Earth-size planet in its star's habitable zone.
- **In comparison to the Earth:** TOI 700 d measures **20% larger than Earth**. It **orbits its star, TOI 700, once every 37 days**.
    - The star, TOI 700, is an **"M dwarf"** located just over 100 light-years away in the southern constellation Dorado. It is roughly 40% of the Sun's mass and size, and has about half its surface temperature.
    - Two other planets orbit the star:

        TOI 700 b, which is almost exactly Earth-size, probably rocky, and which completes an orbit every 10 days.
- TOI 700 c, the middle planet, which is 2.6 times larger than Earth, is probably gas-dominated, and orbits every 16 days.
- **Orbits in Habitable Zone:** TOI 700 d is the outermost planet, and the only one in the TOI 700's habitable zone.

- A habitable zone, also called the **"Goldilocks zone"** is the area around a star where it is not too hot and not too cold for liquid water to exist on the surface of surrounding planets.
    - **Earth is in the Sun's Goldilocks zone.** If Earth were where the dwarf planet Pluto is, all its water would freeze; on the other hand, if Earth were where Mercury is, all its water would boil off.
    - Goldilock Zone is always defined with **reference to a particular star**. It can be different for different stars.

**M-dwarf Star**

- M dwarf or M-type star, also called Red Dwarf Star are the most numerous type of star in the universe and the smallest type of hydrogen-burning star.
- These have masses from about 0.08 to 0.6 times that of the Sun.
- In the Milky Way Galaxy, about three-fourths of the stars are red dwarfs.

**Source: IE**